EDUCATIONAL REVIEW

NOVEMBER, 1891.

I.

THE POLICY OF THE SMALL COLLEGE.

Now that we have the germs, more or less developed, of eight or ten universities, the college must prepare to take second place in our educational system. To ape the university, and try to spread over the whole field of higher education; or to be jealous of the university, and set up as its rival, is equally absurd and suicidal. Its proper policy is to accept with modesty and self-respect its new position; and by losing the old life of self-sufficient independence, to find the new life of membership in the highly differentiated educational organism of which the kindergartens are the feet and the university is the head.

There are three classes of educated persons. First, those whose knowledge of reading, writing, arithmetic, grammar, geography, modern history, descriptive science, and their native language and literature, enables them to do ordinary business, to enter good society, and to enjoy periodical and popular literature. Second, those whose knowledge of ancient and modern languages and literatures, higher mathematics, experimental science, political and economic history, psychology, ethics, and sociology, enables them to grasp the principles of medicine or law or politics or theology; to guide social progress and form public opinion; to enjoy the companionship of wise and good men of all lands and ages; and to appreciate the results in some department of scientific investigation or historical research. Third, those whose special training qualifies them to discover and interpret new truth within some chosen field of knowledge.

To make scholars of the first class is the business of the school; to make scholars of the second class, and to discover and encourage those capable of entering the third class, is the business of the college; to train the chosen few who constitute the third class into full possession of productive powers, is the business of the university.

Assuming that the college has this clear consciousness of its intermediate position between school and university, and of its twofold office to train the majority of its students for scholarly professional and business life, and to discover in the few capacity for exclusively scholarly careers, let us see what its policy will be on such vital points as the conditions of admission, the course of study, the conferring of degrees, the composition of the faculty, the mode of government, and the spirit of the institution.

In determining the conditions of admission, the college has in view two ends which in the present state of secondary education are often inconsistent. First, to secure thorough training; and second, to make close and natural connection with the course of study pursued by the average student in our academies and high schools. In order to secure the requisite training the majority of Eastern colleges insist on specified amounts of Latin, Greek, and mathematics as the substance of their requirement. This requirement, however, does not coincide with the course of the average student in the high school. Unless, by the time a boy is thirteen, his parents have picked out a college career for him, he studies in the high school history, science, French, or German, neglecting Greek, and perhaps Latin, altogether. Then by the time he is seventeen he finds himself hopelessly cut off from a college course.

Why, then, does not the college recognize these studies as substitutes for the traditional requirements? For two reasons: one bad, and one good. The bad reason is that Latin, Greek, and mathematics, having been for generations the traditional requirements, have become the objects of superstitious veneration.

The good reason is that the average high school is not yet equipped, either in teachers or apparatus, to make the study of history, science, and modern languages the means of that thorough training which they are able to give by means of Greek and Latin.

There are schools in southern New England, and a few elsewhere, in which science and modern languages are so taught as to give the requisite training; and colleges which draw largely from these schools are justified in allowing the substitution of these studies for portions of the traditional requirement. The average college is not justified in such a course at present.

The change is destined to become universal in the near future. As soon as the high schools are able to teach experimental science, French, and German as well as they now teach Greek and Latin, it will be the policy of the college to require for admission mathematics and English as at present; ability to read easy prose at sight in Latin, and either Greek, French, or German, and evidence of a thorough course in experimental science. We shall then have a considerable number of students fitting for college in the high schools, who will be for the most part in the same classes with the students who are not intending to enter college, instead of the small number who pursue a separate course, and thus receive an undue amount of the time of the teacher, and an unjust proportion of the public school fund.

This modification in requirement will necessitate some corresponding modifications in the course of study. It will be necessary to offer an elementary course in Greek, as well as in German and French, for those who wish to begin this study after admission to college. There should be a course in the history, literature, mythology, and archæology of Greece required of every student who has not studied the Greek language as a part of his preparatory or college course.

The multiplication of highly specialized electives is not the province of the college. The expense is too great, and the profit to students at this stage too small.

There are two fundamental lines of scholarly interest, and two corresponding types of mind: the literary and the scientific.

The college should by its required courses insure to every student an acquaintance with the first principles in both these fundamental lines of study. The college may wisely require of its candidates for a degree, ability to read both French and German, to write correct English, the elements of political and economic science, psychology, and ethics, on the side of the literature and life of man; and higher algebra, geometry and trigonometry, and the elements of chemistry, physics, and biology, on the side of mathematics and physical science.

For the remaining half of the course sufficient electives should be offered to allow concentration on either literary or scientific studies according to the taste and interest of the individual student.

Such a readjustment of the conditions of admission and the course of study, together with improved methods of teaching in the lower schools, will allow pupils to enter college a year or two earlier than at present. No shortening of the course will be necessary. The difference between the best academies and high schools and those of inferior grade, will express itself by the increased number of students who will enter college a year in advance.

A. B. should be the ordinary college degree, and it should be given without reference to the precise nature of the course pursued. The degree means simply that the recipient is a liberally educated man. Attempts to discriminate between the educational value of courses of equal length and thoroughness in the same institution of liberal learning are relics of an educational superstition from which it is high time to emancipate ourselves.

In order to encourage continued study during the year immediately following graduation, the college is justified in granting the degree of A. M. to graduates who give evidence of having done the equivalent of a year's graduate study.

Beyond this the college has no right to go. It owes to its undergraduates the full expenditure of its income and the full time of its professors. And if it attempts to divide its strength between graduates and undergraduates, it does an injustice to both. It is the duty of the small college to drive away graduates who desire a prolonged course of systematic instruction, to larger institutions which make graduate instruction their main concern.

The degree of Ph. D. no mere college has a right to confer; and the conferring of this degree by institutions which make no adequate provision for graduate instruction is the gravest breach of educational propriety.

If sparingly and judiciously conferred, the honorary degrees of D. D. and LL. D. give fitting recognition to distinguished services to church and state by sons of the college and prominent public servants and benefactors in its immediate vicinity.

The most important department of college policy is the appointment of professors. The first lesson a college president has to learn is the comparative worthlessness of even the highest testimonials and letters of recommendation. Testimonials stand to fitness for a college professorship as naturalization papers to fitness for membership in Congress. They are things no candidate who is a stranger should be without; but they by no means indicate the desirability of his election.

Those young colleges which are rapidly filling their faculties with any and every applicant who comes gowned in a thesis and capped with a degree, and bringing in his grip a batch of testimonials from university professors, will soon discover to their sorrow that it takes more than knowledge of a specialty to make a good college professor, and more than an aggregation of specialists to constitute a faculty.

The chief business of the college is to train young men for active life; and a good proportion of a college faculty should be men who have gained maturity of character through experience in the great school of life; men who have studied a profession, or interested themselves in some practical social

problem, or have traveled extensively or have edited a paper or delivered lectures, and at the same time have kept alive and fresh their scholarly pursuits and aims. In the college professor the man must be more than the scholar, if both he and his department are to gain the highest respect of his students.

Still, in order to fulfill its other function of awakening the scholarly impulse in those who have capacity for purely scholarly careers, no college faculty should be without a group of men fully equipped with university training and thoroughly imbued with the university spirit; though these men must be selected with the greatest care out of scores of candidates, and with reference to their human, quite as much as to their scholastic, qualifications. Of course the two types of men may be blended in the same individual. Such men are, however, somewhat rare. The presence of two or three upon a faculty insures to a college perpetual prosperity and power.

The objects of college government are to secure good order and freedom from disturbance in the buildings and on the grounds of the college, and to protect the thoughtless and immature from their own folly and vice.

In a small college the first object can be most effectively secured by putting the whole responsibility for good order into the hands of the students themselves, as represented by a senate or jury of their own election. Their own sense of fitness, their loyalty to the college, and their regard for its good name, together with their superior opportunities for ascertaining the facts about any disturbance, render them the best guardians of its peace and order that a college can secure.

In order to make this system work, however, it must be a reality and not a pretense. The faculty must put the whole responsibility entirely upon the students; reserving no veto power or right of reconsideration to themselves. In Bowdoin College this responsibility has been delegated to the students during the past eight years; and throughout that period no question of this kind had been dealt with by president or faculty. The students have acted on their own judg-

ment of what is just and right. Sometimes they have acted wisely, sometimes they have acted unwisely; sometimes they have failed to act at all. But in every case the full responsibility has been with them. There has been a steady advance in the fidelity and efficiency with which the jury has done its work; and during the last two years they have done all that the strictest faculty would, and more than any faculty could have done, to maintain the good order and elevate the standard of conduct in and about the college grounds.

The reformation of individual students can be done better by personal influence of president and professor than by formal faculty action. An unofficial letter of advice and warning to parents, a friendly talk with the student himself, is much more effective than a scale of fines, demerits, rusticications, suspensions, probations, special probations, and expulsions.

If a student fails to respond to this personal appeal, he should be removed as quietly as possible at the first convenient season, in a way that will least attract the attention of the outside world, least hurt the feelings of parents and friends, and most kindly and firmly impress upon the student the fact that he and not the college is to blame for the severing of their connection.

The assumption with reference to students should be not that they are criminals, to be properly punished for every crime they commit; but that they are thoughtless and immature persons, who often need advice and warning and reproof; who, as a rule, mean to do right, and can be much more efficiently controlled by good will and patience than by wrath and vengeance.

In a word, the government of a small college should be that of a large family; the welfare of the students, collective and individual, should be its single aim; and the fewest rules and the slightest penalties and the least display of authority that will accomplish these ends is the ideal of college government.

The spirit and tone of the college should be in the broadest sense of the term religious.

It is simply inconceivable that young men between seventeen and twenty-five should be content with the mere doing of the particular tasks assigned them from day to day, regardless of the wider relations and deeper meaning of their lives. This hunger and thirst for adjustment to a larger and higher sphere of being may be met in either of two ways.

The student may go into society, acquire the ways of the world, and by gaining entrance to the circles of the cultured, and finding favor in the eyes of the fair, attain the conviction that he belongs to the great and glorious order of things, and that all is well with him. His accomplishments and popularity secure him considerable advantage in getting a start in life, and he easily becomes a typical man of the world. He lacks depth, sincerity, and inward strength, and is not sure to stand the strain of disappointment and temptation in later years.

The tendency of life in large colleges near great cities is somewhat in this direction. The small college in the country town does not present in such bewitching guise the attractions of social life. And so the student's mind may more easily be led beyond the artificial, local, and temporal aspects of life, out into meditation and communion with the universal and eternal. The student thus trained may lack some of the accomplishments and miss some of the opportunities of his urban brother; but he has formed fixed ideals of character and principles of conduct. He is rooted and grounded in reality, and his confidence is in God and his own right arm.

The maintenance of this religious tone and spirit, which is manly because it is godly, and is superior to the shocks of time and fortune because it is rooted and grounded in eternity and God, should be the distinctive and crowning glory of the small college.

For combining sound scholarship with solid character; for making men both intellectually and spiritually free; for unit-

ing the pursuit of truth with reverence for duty, the small college, open to the worthy graduates of every good high school, presenting a course sufficiently rigid to give symmetrical development, and sufficiently elastic to encourage individuality along congenial lines, taught by professors who are men first and scholars afterward, governed by kindly personal influence, and secluded from too frequent contact with social distractions, has a mission which no change of educational conditions can take away, and a policy which no sentiment of vanity or jealousy should be permitted to turn aside.

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II.

THE LITERATURE OF EDUCATION.

The literature of education might be divided into literature pertaining to the history of education, literature pertaining to principles of education, literature pertaining to methods of instruction, and literature consisting of books whose chief aim is to direct the moral purpose and arouse the enthusiasm of the teacher. For practical purposes, however, it is extremely difficult to establish any such classification as the foregoing. Methods are deductions from principles, and principles of education are deductions from so many sciences, as well as from the history of education, that it cannot be said of any one book that it is exclusively devoted to principles or to methods; while the history of education, as I shall attempt to show, is best gleaned, not from the text-books on the subject, but from books of many different characters, produced at far distant periods and under the most diverse conditions. The order that exists in the literature of education is not the order of bricks in a wall, but the order of the boughs and the foliage of a tree.

That the ordinary text-books studied in our normal schools do not supply all that is necessary for the thorough equipment of the teacher is only too apparent. Take, for instance, the history of education. This subject has been made a part of the course of study in every State normal school, in every city training school for teachers, in every college department of pedagogy. It is justly claimed for the history of education that, when properly studied, it results in culture of the highest kind by generating a realizing sense of the great things accomplished by the human race; that it imparts an exalted idea of the teacher's profession through inciting reverence for the great teachers who have left their impress on mankind; that it shows us what to avoid by exhibiting the experiments

that have been tried in the balance of experience and found wanting; and that it displays before us principles and methods the efficacy of which has been demonstrated by the accumulated testimony of ages. Are these claims sustained in practice? In every school are found teachers that are supposed to have made a study of the history of education, who are not imbued with reverence for the great professors of the teaching art; who day after day commit the very mistakes that have been demonstrated a thousand times to be mistakes; and who are devoid of any realizing sense of the principles that were long since enrolled among the eternal verities. In spite of their study of the history of education, many teachers still build their houses, so to speak, on the sand and not on the rocks.

Indeed, the question may well be asked: Are we, in any proper sense of the term, teaching the history of education? What is it we do? We place in the hands of our pupils a little text-book on the subject, and tell them to study that. It consists of brief biographical sketches of great teachers, brief accounts of the schools they founded or conducted and the works they wrote, and a summary of the principles of education they are supposed to have established. Pupil teachers memorize names, and dates, and lists of principles, which they proceed to forget with the utmost alacrity as soon as the graduating examination is concluded. And this is all that comes to the average teacher from studying the history of education—the merest shell, from which the kernel has been lost.

The case is exactly paralleled in the history of the teaching of English literature. When English literature first became a subject of school study, no better plan was found than to set children to memorizing the names of authors, the works they had written, and criticisms upon these works; and thus the most delightful of all studies is to this day often made a mere weariness of the flesh. And so with the history of education. We read about the great teachers instead of reading what they have written. Criticisms upon their lives and writ-

ings are of the highest utility in their proper place; but the foundation should be laid by first reading the works themselves. For, unfortunately, the methods by which a great teacher accomplishes his results, depending so largely upon voice and manner and personal magnetism and moral force, must to a great extent perish with him. His impress, it is true, he may leave upon thousands of souls by whom again it is transmitted to others; but this is invisible and intangible. What we may learn from him, we learn only through the printed page. There, at least, we may commune with the great teachers of the past; there, we may acquire something of their merits; there, we may imbibe something of their inspiration. The writings they have left us constitute the literature of education—a literature that has emanated from some of the greatest minds that ever illuminated this earth—a literature in which, to borrow a simile from De Quincey, it would be as difficult to distinguish the values of the matter and the style, as, with regard to the earliest rays of the dawn, it would be to say how much of the beauty lies in the heavenly light which chases away the darkness, how much in the rosy color which that light entangles. It is this interpenetration, this inseparability of matter and style, that constitutes the distinguishing mark of all literature properly so called, and no less of the literature of education than of any other literature.

Since literature first began, the great creative minds of the world have come in groups, causing "intermitting paroxysms of intellectual energy." "The lightning and the storm," again to borrow De Quincey's imagery, "seem to have made the circuit of the whole European heavens, to have formed vortices successively in every civilized land, and to have discharged themselves by turns from every quarter of the atmosphere." Each of these "paroxysms of intellectual energy," it would not be difficult to show, connects itself with some great social or political upheaval that stirred men's souls to their innermost depths and threw to the surface the emanations of genius, as flames are projected from the crater of a volcano.

For the working out of this idea, however, I must refer the reader to De Quincey's noble essay on style. What is more to my purpose is to show that invariably each cluster of creative minds has contained at least one that has made lasting additions to pedagogical science; that every great manifestation of intellectual energy has thrown fresh light on the problem of how each generation ought to train its successor. Sometimes, the literature of education is fraught with the very spirit of the age that gave it birth, as in the writing of Plato; sometimes, it is a protest against existing usages or a satire upon prevalent abuses, as in those of Rabelais; sometimes, the educational seer, with prophetic ken, as in the case of Bacon, anticipates by centuries the reforms and practices of future ages; but, in every instance, educational literature, where it really belongs to the literature of *power* as distinguished from the literature of *knowledge*, is an emanation from the spirit of the age in which it is produced.

I shall now endeavor very briefly to indicate the works that, while belonging to literature in general, belong also to the literature of education.

First in order of time, and certainly among the first in order of merit, comes Plato's *Republic*. It should be read in the original, if possible; if not, in Jowett's translation. But whether it be perused in the original or in a translation, it should be studied in the light of Professor Nettleship's *Exposition of Plato's Theory of Education*—one of the noblest contributions to pedagogical science that our century has produced. The reader of these works will have studied them to little purpose if his mind is not possessed of at least three clear ideas: first, that there can be no rational system of education that is not founded on an analysis of the powers of the human mind; second, "that neither a state nor an individual can undertake to educate in a systematic way unless they start with some idea not only of what they wish to teach, not only of the type of character which they wish to produce, but also of the living being to which the matter to be taught is relative, and upon which the given character is to be im-

pressed"; and, third, that the formation of character is much more important than the imparting of knowledge. How many states or cities have formulated the object of public education? How many teachers have formed a working conception of the character they should impress on the beings committed to their care?

Aristotle has left us two treatises that are practically works on the science of education. In his *Ethics*, he gives us from the Hellenic standpoint the science that underlies the art of moral education; in his *Politics*, he expounds the duty of the state to education. To him the world owes two great ideas: that it is the duty of the state to educate, and that education should be compulsory. The failure to produce a certain type of character is the failure of the state.

> Ill fares the land, to hastening ills a prey,
> Where wealth accumulates and men decay.

Ancient Rome has left us no great treatise on education. The Romans were too busy in conquering and ruling the world to indulge in philosophical inquiries. The art of arts with the Roman was oratory. Hence it is that the most ambitious educational work produced in ancient Rome—that which gives us the clearest insight into the methods of Roman education—is Quintilian's *Institutes of Oratory*. Of much greater interest and value to the teacher, however, is Plutarch's *Lives*, which, though written in Greek, presents many phases and results of Roman, as well as of Greek, education. Probably the best translation, though unfortunately only a partial one, is that by the late Mr. George Long.

After pronouncing a eulogy on the "self-culture" of the Greek, and the "self-sacrifice" of the Roman, Oscar Browning exclaims, "Has the modern world ever surpassed these types?" Magnificent, however, as were the civilizations of Greece and Rome, it should never be forgotten that both of them rested on foundations of slavery, and that little thought was given to the education of the children of the poor and lowly, much less to that of the children of the slave. A new conception of

education, of its universality as well as of its beneficence; above all, of the dignity of child life and of the responsibility of those to whose care it is committed, began to dawn on that day when the greatest Moral Teacher of all time took a little child and set him in the midst of the disciples, saying:

> Whosoever, therefore, shall humble himself as this little child, the same is greatest in the kingdom of heaven.
>
> And whoso shall receive one such little child in my name, receiveth me.
>
> But whoso shall offend one of these little ones which believe in me, it were better for him that a millstone were hanged about his neck, and that he were drowned in the depths of the sea.

Surely the *Gospels* are rightly included in the literature of education.

When Christianity began to spread throughout the Roman empire, strife arose between the adherents of paganism and the adherents of the new religion. One of the most bitterly contested points was the education of the young. There is an account of this strife, that is of enthralling interest, in Charles Kingsley's noble novel, *Hypatia.*

As Christianity spread more widely and took root more deeply, as the nations of Europe began slowly to build themselves up out of the débris of the Roman Empire, two systems of education developed. One was the education of the young monk; the other, the education of the young knight. The former trained its subject for a life of seclusion and asceticism; the latter, for a life of chivalry and all that the name implies. Both systems, so potent is tradition, so strong is hereditary influence, have left their marks, even to this day, on educational practice. There are still to be found schools in which teachers shout and scream in impotent rage at their pupils; in which brutal whippings are the chief instrument of moral, or rather of immoral, education; in which children are compelled to sit in constrained positions and perfectly motionless, and in which various other ingenious tortures, euphemistically termed "discipline," are practiced. Are not these barbarities survivals of customs that prevailed when, to use Oscar Browning's words, "Education was a routine of useless technicalities,

enforced amid the shouts of the teachers and the lamentations of the taught?" Nor are those wanting, on the other hand, who would reduce all school work to play; and so it would seem that the education given the young knight in baronial hall, or my lady's bower, is still not without its influence. Laurie's *Rise and Constitution of Universities* summarizes the descriptions of monastic schools given by contemporary writers as well as the comments of subsequent historians. Professor Laurie not only shows, from the example of the monastic schools, what is to be avoided in school management, but also gives us a picture of the noble work accomplished by the church in keeping bright the torch of learning in the midst of an age of darkness. Newman's *Idea of a University*, every page of which is suffused with the fine moral glow that permeated its author's mind, treats in part of the same subject. The noblest setting forth of the ideal of knightly education is to be found in Tennyson's *The Idyls of the King*; but, perhaps, a truer picture—certainly truer for later times—of the young knight's education, is presented in Sir Walter Scott's romance, *The Abbot*. There are, however, two books, produced in the Middle Ages, presenting, as they do, whatever is best in the intellectual and religious life of the time, that should be in every teacher's library—the *Imitation* of Thomas à Kempis and the *Divine Comedy* of Dante.

The Renaissance—the period of transition from the Middle Ages to modern life, roughly marked out by the fourteenth and fifteenth centuries—gave a great impetus to education and prepared the way for the production of a new educational literature. The invention of gunpowder had given the death-blow to feudalism. The mariner's compass had enabled the sailor to venture beyond the Mediterranean, and rendered possible the discoveries of Vasco da Gama and Columbus. Printing with movable types had placed books within the reach of all and brought general education within the possibilities. A reaction set in against the predominant theological training in the schools. At a time when men were searching for stimulus and direction, the Greek scholars, who, after the

fall of Constantinople, found their way all over Europe, managed to turn the energies of the schools toward the classical literatures of Greece and Rome. The Greek scholar, however, of whom George Eliot gives us an accurate portrait in *Romola*, was not the man to institute educational reforms. Notwithstanding the efforts of Erasmus, the change in the subjects of study did not result in any marked improvement either in the ideal, or in the methods, of education. The pouring in of knowledge—often useless knowledge—continued to form the ideal; the cane continued to supply the method. The revolt against the brutality of the schoolmaster was, to their honor be it spoken, led by the Jesuits. Of teaching as practiced by the Jesuits in the seventeenth century, very interesting, and withal not unkindly, accounts are given by Thackeray in *Henry Esmond* and by Shorthouse in *John Inglesant*. The revolt against the prevailing ideal in education was led on the one side by the leaders of the Protestant reformation, —Luther and Melancthon,—and, on the other, by two literary men of genius whose writings deserve to be held in everlasting remembrance by the teacher—Rabelais and Montaigne. One of the greatest masters of satire, Rabelais protests with all his strength against the school teaching and the school literature of his day. His work was not merely destructive; it was also constructive. He advocates training through the exercise of the child's innate powers, as distinguished from the mere pouring in of information, and makes a strong plea for the study of things as well as of words; for giving attention to nature as well as to books. The arrows of his satire find targets even in the present day, and every teacher may study with profit the chapters on education in *The Life of Gargantua* and *The Heroic Deeds of Pantagruel*. Montaigne, in his essays, takes up the work commenced by Rabelais, minimizes the importance of mere knowledge, inveighs against severity, and urges the necessity of training.

In the works of these two writers are found the germs of two controversies that are still waging—the controversy between training on the one hand and the memorizing of facts on the

other, and the controversy as to the relative values of various kinds of knowledge, particularly of language studies and nature studies. As yet only one memorable work on education had been produced in England—*The Schoolmaster* of Roger Ascham; and this is chiefly valuable as a disquisition on methods of teaching Latin. But now one appeared on the stage whose philosophy, even though its full effect is not yet apparent in educational work, was destined to turn the current of the world's thought, as never before, in the direction of nature studies—Francis Bacon, the author of the *Essays* and the *Novum Organum.* Those who still labor under the delusion that Francis Bacon invented inductive logic, would do well to read Macaulay's essay on the subject. Bacon it was, however, who gave a great impetus to the study of nature; who urged upon men, instead of accepting hypotheses at second hand, or on purely imaginary grounds, to verify them by bringing them to the touchstone of fact. The great truths which he enunciated are only beginning even now to receive their due weight in educational philosophy. His influence may be traced in nearly all subsequent writings on the philosophy of education. Even John Milton, classicist as he was, was profoundly influenced by the Baconian philosophy in writing the *Tractate on Education;* and it reappears with increased vigor in the work of Comenius, who is generally regarded as the founder of the modern science of education. Comenius saw, says Quick, "that every human creature should be trained up to become a reasonable being, and that the training should be such as to draw out God-given faculties." His writings are very voluminous, and are best studied in the summary of them presented by Professor Laurie in *The Educational Life and Writings of John Amos Comenius.*

Passing over the educational writings of John Locke with the simple remark that they will amply repay perusal, I come to two writers who will be readily admitted to the number of great reformers. They are the legitimate successors of Rabelais and Montaigne, of Bacon and Comenius. Their names are on everyone's lips, but it is somewhat doubtful whether their

philosophies are as accurately known as their names are familiar. Every teacher should make a part of his own mind Pestalozzi's *Leonard and Gertrude* and Froebel's *Education of Man.*

The immediate precursor of Pestalozzi and Froebel was Rousseau. His was as the voice of one crying in the wilderness. In *Emile* he gives vent to that profound discontent which paved the way for the French Revolution. Many of his theories and methods are now regarded as purely fantastic, and yet *Emile* is one of the great classics of education. "It cleared away," says John Morley, "the accumulation of clogging prejudices and obscure inveterate usage which made education one of the dark formalistic arts; and it admitted floods of light and air into tightly closed nurseries and schoolrooms." Mr. Quick points out that it did even more—that it is the first book to set forth as the paramount duty of the teacher, "Study the subject you have to act upon."

In order to study the minds and dispositions of children with a view to providing requisite training, some knowledge of psychology is necessary. Whether we take the view of Professor Royce, that what the teacher has chiefly to gain from the study of psychology is the psychological spirit—the love and the skill that are required for mental diagnosis; or whether we agree with Dr. Mary Putnam Jacobi, that the teacher is not merely an observing naturalist, but "an agent appointed to solve problems, to produce effects on a living organism, to modify forces, which begin by being psychological, but end by being social;" it matters not which of these positions we assume, we must still agree that psychology is a *sine qua non* to the teacher. Most of the older works on the subject are, however, ruled out from the literature of education because they were written, not to aid a psychological naturalist, but to support some preconceived notion in theology or metaphysics. Moreover, the modern discoveries in physiological psychology are of such tremendous importance that it is safe to say that the greater part of the psychology written more than thirty-five years ago is now practically

worthless from the teacher's point of view. The treatises by Mr. Sully and Professor Murray will be found helpful; while Professor James's more extended work is invaluable. The teacher, however, who merely reads his psychology will get little benefit from the study. What he needs to do is to bring every doctrine and every statement to the test of experience, both by introspection and by observing the minds of children.

Psychology, however, does not furnish complete data for a philosophy of education. These must also come from biology, physiology, sociology, and ethics. Of those who have essayed philosophies of education, Kant, Hegel, and Herbart, in Germany, are the most prominent. Unfortunately, the pedagogical writings of Kant are not readily accessible. A characteristic story of Hegel is told. "Only one living man except myself," he said, "understands my philosophy, and he misunderstands it." Rosenkranz's *Philosophy of Education* presents a tolerably clear, though not an attractive, exposition of Hegelian pedagogics. Dr. W. T. Harris, in his *Thoughts on Educational Psychology*, has not only illuminated many of the recesses of Hegel's philosophy, but in his own doctrine of the figures of logic has made one of the most important additions to educational philosophy yet contributed on this side of the Atlantic. The Herbartian system of pedagogy received its first adequate exposition in English from the pen of President De Garmo in the pages of the EDUCATIONAL REVIEW.[1]

"Modern thought," says Walter Pater, "is distinguished from ancient by its cultivation of the 'relative' spirit in place of the 'absolute.' Ancient philosophy sought to arrest every object in an eternal outline, to fix thought in a necessary formula, and the varieties of life in a classification by 'kinds' or *genera*. To the modern spirit nothing is, or can be, rightly known, except relatively and under conditions. The philosophical conception of the relative has been developed in modern times through the influence of the sciences of observation. These sciences reveal types of life evanescing into each

[1] I, 33, 244, 453.

other by inexpressible refinements of change. Things pass into their opposites by accumulation of undefinable quantities." In other words, it is the doctrine of evolution that has wrought the change from the cultivation of the "absolute" in thought to the cultivation of the "relative" in thought. The spirit of the evolution philosophy, as expounded by Charles Darwin and Herbert Spencer in England, and by John Fiske in America, is affecting every region of thought from theology to education. It would be strange, indeed, if it did not make some valuable contributions to the philosophy of education. Perhaps the most notable educational works in English that are filled with the scientific spirit are John Stuart Mill's *St. Andrew's Address*, Joseph Payne's *Lectures on Education*, Herbert Spencer's *Education*, and Bain's *Science of Education*.

Of books on methods of instruction I have not space to write. What is of chief importance to the teacher is not a "cut and dried" method of giving a lesson, but, in the first place, general culture, and, in the second, a knowledge of the literature of education. To the teacher who is without general culture, who does not know well the sciences and arts he is required to teach, who has not trained his own mind to systematic habits of observation and reflection, the literature of education will be of little service. General culture is of the first importance; special studies follow in natural sequence.

Even the most cursory view, however, of the literature of education would be incomplete without mentioning a few books which, though not ostensibly setting forth the history, the science, or the methods of education, form a perennial spring of inspiration to the teacher. Of high rank among these are Horace Mann's *Addresses and Reports*, Stanley's *Life of Arnold*, Matthew Arnold's *Reports*, and D'Arcy W. Thompson's *Day Dreams of a Schoolmaster*. Several novels, also, may be included in this class, as Charlotte Brontë's *The Professor*, Thomas Hughes's *Tom Brown at Rugby* and *Tom Brown at Oxford*, George Eliot's *Mill on the Floss*, Oliver Wendell Holmes's *Elsie Venner*, Dickens's *Nicholas Nickleby*, *David Copperfield*, and *Hard Times*, Edward Eggleston's *Hoosier School-*

master and *Hoosier Schoolboy*, and many others. Such poems, too, as Tennyson's *The Princess*, and Wordsworth's *The Prelude*, may fairly be included in this category. But the greatest of all founts of inspiration to the teacher is Goethe—he "to whom every moment of life brought its contribution of experimental, individual knowledge; by whom no touch of the world of form, color, and passion was disregarded"; and it is in *Wilhelm Meister*, particularly in the *Travels*, that this inspiration is to be found. As Wilhelm approaches, after a year's absence, the country of education where he had left his son, a multitude of horses rush by him at full gallop. "The monstrous hurly-burly whirls past the wanderer; a fair boy among the keepers looks at him with surprise, pulls in, leaps down, and embraces his father." Wilhelm then learns that his son's teacher had found the boy fond of animals and had set him to that occupation for which he had been destined by nature. And so we come back to the old, old story. From Plato to Rabelais, from Rabelais to Rousseau, from Rousseau to Herbert Spencer, one leading thought runs through the literature of education—follow nature, guide it, and regulate it; do not stifle it. In all ages, teachers have for the most part adopted a different plan. They have followed preconceived theories instead of following nature; they have built a Procrustean bed and stretched their pupils upon it; they have tried to pour in knowledge instead of developing the God-given faculties of the child to see, to think, to feel, to do. What is the history of education but one long gloomy record of how practice has failed to keep pace with theory? To the literature of education we must look for our ideal and for the inspiration that will lead to its realization.

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III.

TEACHERS' SALARIES AND PENSIONS.

The status of public school teachers in this country illustrates in many respects the peculiar inconsistencies of American character and policies. We regard our institutions as the sum of human perfection until it is clearly proved to us that they are not, and we receive the evidence with the air of having made a flattering discovery. Within the memory of a generation we seriously believed that our schools were the unrivaled models of the world; the knowledge that this is a mistake has not disconcerted us. This complacency is not wholly without reason. So far as principles go, our own school system is indeed matchless; it contains potentially all that idealists have dreamed or philosophers formulated, but its practical elaboration is as yet far below their grand conceptions. The perfection of details which is necessarily a work of time under all circumstances, goes on the more slowly with us on account of our local independence and our very general absorption in personal affairs. The sort of negative policy which characterizes our dealings with public school teachers does not, however, grow entirely out of our national complacency or our universal devotion to business. We are all Jeffersonians to the extent that we have a hatred and a horror of caste, and we fancy a connection between this abhorred thing and a State teaching service. Even teachers have shared this feeling, and although anxious to see their work placed on a secure and dignified basis, have not wished that it should be differentiated by peculiar public marks from other professions. While, however, the open avowal of a vital connection between the teaching service and the State is evaded, in that very connection lies the real explanation of everything that has thus far been done to maintain the service. The support of normal schools by public funds, the public examination of teachers, State diplomas,

State supervision, and so on, are all declarations that something far more abiding and uniform than the law of supply and demand regulates, and must regulate, the work of the schools. If this were not a profound and well recognized truth, every other trade and profession would be clamoring against what is already done for teachers as class legislation.

The drift of events during the last ten years, especially the passion for organized effort which has developed on every hand, has done much to allay undue sensitiveness as to caste and distinctions, and meanwhile the evils arising from the partial recognition of the public responsibility for an efficient teaching service have had their effect. We have at least passed the *laissez faire* stage, and are now quite ready to consider what the State should do, that it has not done, to render the service which it almost monopolizes decently remunerative and permanent. Practically, at this time, the State has the monopoly of elementary instruction among us, and if it does not do the work well it injures itself and defrauds everybody. We may be positively sure that no work is well done in this world, least of all in this American world, which pays only a miserable pittance and offers no chance for securing a competence. How far this charge can be made against the work of public instruction in this country it is difficult to say, the scale of salaries here being more variable than anywhere else, with the possible exception of England. In Massachusetts, for example, the average is high, viz.: for men $108.85 per month and for women $45.93, with an average school year of 8.55 months. This gives an average annual salary for men of $930.66 and for women of $392.70. In North Carolina, on the contrary, the average salary for men is only $24.57 a month and for women $21.95, with an average school year of 3.17 months. This gives an average annual income for public school service of $77.88 for men and $69.58 for women. In the one State, the service has the essential characteristics of a recognized, well-defined profession; in the other it is largely a make-shift for eking out an uncertain income. Between these extremes there is almost every possi-

ble gradation. Obviously the policies that are practicable in one State are out of the question in another.

It must be admitted, however, that few States afford an average salary sufficient to insure living expenses and a fair margin for the future. Until this level is reached the service lacks a most important element, whether security or efficiency be considered. It is the recognition of this weak point that is giving strength to the movement in certain States for securing teachers' pensions. This movement follows the precedent of all foreign nations in which public instruction is treated as a State service. It is perhaps not wise to reason too closely from such precedents to our own country, the conditions of labor, the standards of living, and the purchasing power of money being so dissimilar; nevertheless, we can hardly fail to find profitable suggestion in the consideration of the status of salaries and of pensions in other countries.

In France, the public men, who have strained every nerve to give *éclat* and efficiency to their educational system, realize that it is fundamentally a problem of salaries and of honors. They have regulated the matter with an eye to effect, just as the military service is regulated. There is a system of promotions; there are positions in the administrative corps and in the superior and local councils of education to which teachers may aspire, and the salaries as fixed by the law of July 19, 1889, although smaller than Buisson and Ferry and other leaders would have had them, are an advance upon the former rates.

Principal teachers are divided into three groups, viz., elementary, superior primary, and normal. Each group is divided into five classes, with annual salaries paid by the State as follows:

	PRIMARY SCHOOLS.		SUPERIOR PRIMARY TEACHERS.	NORMAL SCHOOLS.	
	Men.	Women.		Men.	Women.
Fifth class	$200	$200	$360	$700	$600
Fourth class	240	240	400	800	700
Third class	300	280	450	900	800
Second class	360	300	500	1000	900
First class	400	320	560	1100	1000

An additional sum of $40 is allowed principals in charge of a school of three or four classes, and of $80 for a school of more than four classes. Assistant teachers in primary schools are paid $160. Assistant teachers in superior primary schools, from $220 to $420. In addition to his salary, every teacher must be provided with a residence or with a money equivalent for the same. The law imposes this provision upon the communes, adjusting the rates of indemnity upon the basis of population. These, beginning at $20 for communes having less than 3000 inhabitants, form an ascending series of eight grades, increasing uniformly by $20. For a population above 100,000 the indemnity reaches $160. A special rate of $400 is allowed in Paris.

Individual communes may and often do pay an increase over both the minimum salary and the statutory house-indemnity. These rates give a higher average than American salaries. This is, however, a misleading comparison, because in the case of France we are dealing with a single uniform system, and in that of the United States with forty-four or more distinct and widely varying systems. Moreover, the French salary is paid for the full control of the teacher's time, whose working year is eleven months and who is prohibited from all other occupations. The average school year in the United States, on the contrary, is only 6.7 months, which means of course for many States a much shorter session. The remainder of the time the teacher can do what he pleases. This may be an evil in the system, but it is a fact having an important bearing upon the salary question.

By a law passed seventeen years before the establishment of the present Republic, the French civil pension list was extended to include teachers. The pension is available for teachers sixty years of age who have given thirty years' service. Under some circumstances, it is available at fifty-five years of age after twenty-five years of service. Special provisions are made for those incapacitated from service by accident, severe illness, and similar causes. The State retains five per cent. of the salary each month, and also one-twelfth of the

first year's salary, and of each subsequent augmentation, toward the pension fund. The amount of the pension is calculated at $\frac{1}{60}$ of the mean salary of the last six years for each year of service, a rating which, it will be seen, gives as a maximum annual pension, one-half of the mean annual salary. Complaint is made of the retention of a twelfth of the salary at the beginning of an engagement, as practically it leaves the novice without any income until the end of the second month. Otherwise the arrangement seems to work satisfactorily.

The status of teachers in Germany is so well understood in this country that little need be said on the subject. They constitute a professional body having a life tenure, and enjoy a prestige similar to that of the clergy. Their salaries are, however, meager, and at the present time, in many districts of Prussia, complaint is made of a dearth of candidates for teachers' positions owing to the uninviting pecuniary prospect. Nevertheless, statistics show that the average salary, the whole empire included, is 1032 marks, or $258. In the cities the average is 1365 marks ($341.25), and in the country 874 marks ($218.50). In addition, house and fuel are provided. The city salaries are below the average in the United States and very much below the average paid here to men. This should be especially noted, since nearly all the German teachers are men. For reasons already mentioned, the averages for this country cannot well be given, but the report of the Commissioner of Education, just issued, contains some tables that will be found suggestive. From these it appears that the range of teachers' salaries in 447 cities of the United States, having each more than 4000 inhabitants, is as follows:

RANGE OF SALARIES.	NO. OF PLACES.	PER CENT. OF TOTAL.
Less than $1000	291	65
1000	22	5
From 1000 to 1500	94	21
From 1500 to 2000	35	8
From 2000 to 2500	5	1

Of the 291 places in the first category, 248 exceed $500 in salary. The average salary of assistant teachers for 467 cities

is found to be $508. Some of the highest paying cities are not included in this tabulation, notably Boston, which in 1887–88 reached an average of $958 on all classes of teachers, principals, and assistants, numbering altogether a force of 1221 persons. San Francisco, which is included in the foregoing table, reaches a still higher average, viz., for principal teachers $1741, and for all others $908. The force is smaller than that of Boston, numbering about 800 persons. New York City, with a force of about 4200 teachers, shows an average annual salary of $1900 for principals and of $730 for all other teachers.

These rates are considerably above the maximum paid in German cities, but possibly they do not represent relatively larger incomes. The comparative value of money in different countries is a subject of much dispute, but I believe it is generally conceded to be greater in Germany than in America.

I recall that in 1885, an English head-master, Mr. R. Wild, president of the National Teachers' Union, maintained that Continental teachers were better off than their English compeers on account of their secure tenure and pensions. At that time the average annual salary for certificated masters in England was $605, and of certificated mistresses $365.75. Mr. Mundella challenged the statement, offering to pay part of the expenses of a Continental tour to the delegate who should bring satisfactory evidence of its correctness. Mr. Wild made the tour and as a result submitted a report full of interest and suggestion. He ascertained among other particulars, that in Berlin the average annual salary of 707 assistant mistresses was $365; that of 1385 assistant masters, $558; and that of 137 head-masters, $885; or a general average of $515, with the addition in every case of free residence, light, and fire.[1] The Berlin teachers seemed to Mr. Wild better off than the London teachers, although the average salary of head-masters in London had reached $1095, and the general average for all

[1] For Mr. Wild's full report, see *The Schoolmaster* (London), April 11, 1885, pp. 557–58.

teachers $580. It was generally felt that Mr. Wild had sustained his point.

Pension provisions occupied a prominent place in Mr. Wild's report. The general regulations in Prussia respecting this matter are as follows: 25 per cent. of salary after 20 years' service; 50 per cent. after 30 years; 75 per cent. after 40 years; and the full salary after 50 years. The State requires all teachers to pay an annual premium into the pension fund, rated at 1 per cent. of a salary of $400, at 1½ per cent. of salaries from $400 to $1000, and at 2 per cent. of all higher salaries. It frequently happens that the city or commune pays the premium for the teachers, and also adds to the amount of the legal pension. One head teacher, who calculated his pension with Mr. Wild, indulged the expectation of 2985 marks from the State, which amount, he said, would be increased by the city to 3000 marks, or $750.

In both France and Germany the teacher's pension or a part of it at least, may be continued after his death to his widow and minor children.

In the other German States and also in Holland, Belgium, Denmark, Austria, and Russia the pension is a feature of the educational system. In Belgium Mr. Wild encountered a teacher who was the fortunate recipient of a pension of $1000 per annum. This is an extreme case, however, the pension in that country usually ranging between $200 and $400. In Switzerland, pension regulations, like all other educational interests, are settled by the individual cantons. Some of these maintain pensions, others do not.

Turning to the Scandinavian peninsula we find life characterized by a general simplicity and contentment, in which the teachers fully share. Their office is held in high esteem, and their salaries, although small, are sufficient to raise them above the state of ordinary laborers. Thus, the average salary of adult workmen is placed at 12.48 crowns a week, which would give an annual wage for steady work of $73.68.[1] Against this

[1] Les Conditions du Travail en Suède et en Norwège, p. 17. Repport addressé au Ministre des Affaires Etrangères, par M. René Millet, Ministre de la Republique Française à Stockholm.

we find the lowest annual salary for regular teachers to be $165.50, besides house, fire, garden, and feed for a cow. After five years this salary must be raised to $194.50. In large towns annual salaries range from $338 to $519 for men and from $278 to $375 for women, rising in Stockholm as high as $666.50 for men and $444.40 for women. The State co-operates with the communities to maintain a pension fund which secures to retired teachers after 30 years of service an annual income of about three-fourths the mean salary. As regards Norway, a bill providing for the pensioning of teachers is now before the Storthing.

The peculiar feature of this bill is that it vests the power of settling a teacher's pension, as well as the payment of it, in the local authorities. This appears to be somewhat anomalous, since the greater part of the salaries are provided from the public funds. It is, however, thought that the local authorities will be better judges than the general government of the circumstances affecting individual cases. Although Norway has not had the benefit of a pension law, it has been customary for the Storthing to grant special pensions to aged or disabled teachers.

In the southern countries of Europe popular education is practically in a backward state, but the theoretical provisions are definite and minute. In Italy the fixed minimum salaries for men range from $100 to $240 per annum, a reduction of one-third being made for women. In Spain, where there is no discrimination between the sexes, salaries are divided into seven grades based upon the population of communes. The range is from $125 to $600.

In both of these southern kingdoms there is a pension provision, that of Italy being of very recent date.

Great Britain affords the only conspicuous example of a European country maintaining a public system of education, but making no provision for teachers worn out in its service. The absence of such provision is easily understood when the peculiar structure of the English system is taken into account.

By the Act of 1870 the government simply assumed the right to see to it that accommodation was provided in efficient

schools for all children of school age. To this end the local rates (*i. e.*, taxes) were made contributory to the support of elementary schools, and orders issued for the election of school boards charged with the duty of establishing and maintaining schools. The annual parliamentary grant, which had been instituted as early as 1833, was greatly increased, the basis of its distribution changed, and denominational and other private schools admitted to share in its bounty on the same general terms as public schools. The largest possible liberty compatible with the economical expenditure of the grant was accorded to local managers. This policy, which differs widely from the authoritative and pervading control of Continental governments, was naturally opposed to any uniform provision for teachers. They were not regarded as state officials and their salaries and tenure were left to the control of local managers. Naturally these provisions differ as widely as do those of American States. The Scottish system, which is keyed on a much higher tone than that of England, is like it in respect to local independence. The British government has, however, several times committed itself to a pension policy.

In 1846 a Minute was adopted providing pensions for certificated teachers in State-aided schools. This was rescinded in 1862, but renewed in 1876 as an act of justice with respect to all teachers engaged before 1862. Moreover, by an act of 1879 the government instituted a pension fund for Irish teachers engaged in the "National Schools," which are operated on a totally different plan from the English schools. A pension scheme for teachers is therefore not foreign to English political thought. The average salaries of English teachers have already been given, but these being averages of totally dissimilar particulars, are comparatively meaningless. We can form a better idea of the pecuniary promise of the service from the representations of those who are personally familiar with living conditions in England. The subject was pretty thoroughly discussed at the annual meeting of the National Union of Elementary Teachers held in April last. The president, Mr. Collins, in his address, called attention to the fact

that 1000 head-masters received each less than $375 per annum, and 3684 less than $500, head-mistresses faring even worse. Outside of the chief cities assistant teachers have little to hope for. In the prosperous borough of Salford the maximum salary for an assistant master is $400 per annum, and for assistant mistresses $270. These salaries cover a full year's work, and upon them the teacher is expected to maintain a respectable appearance and provide for the day when the "keepers of the house shall tremble"; for under present circumstances most assistants must remain in that capacity to the end of the chapter. Mr. Collins noted that the lowest class of government clerks fare much better, and that college graduates entering the metropolitan police force, as some have done, have better chances for a comfortable living than the rank and file of teachers. Even a dustman, employed by the Works and General Purposes Committee of a London parish, received higher compensation than the average wages paid assistant teachers in the borough cited above. With these cases in mind it is easy to understand why it is that salaries and pensions have become burning questions in England. This is the more significant to us since English teachers resemble our own in their love of independence and in their opposition to fixed and invidious class distinctions. On the other hand, the English teachers have less of that careless optimism which takes the chances of a better to-morrow and give themselves more earnestly to organized effort for the improvement of their condition. The passage of a pension bill is one of the measures for which they have long contended and which they have at last the satisfaction of seeing presented to Parliament.

Two superannuation bills have in fact been introduced, one by Sir Richard Temple, member of the London School Board, drawn up in the interests of the metropolitan teachers, and the other a general measure for all teachers. A select committee has been appointed to consider the proposals and the success of the general measure appears to be a foregone conclusion. It is in accordance with the recommendations of the

Commissioners appointed to investigate the operations of the Education Act. It is also supported very generally by the press, and will have able advocacy when it comes up for public discussion. The provisions of the bill are substantially the same as those of the Prussian regulations. The pension is to be available for certificated masters at 60 years of age, for mistresses at 55 years of age, and also for teachers who become incapacitated for duty after ten years of service. Teachers are to pay an annual premium of 4 per cent. of their salaries into the pension fund. An ordinary pension is to be reckoned at $\frac{1}{60}$ of the annual salary at the date of retirement for each completed year of service. The measure does not extend to Scotland or to Ireland, buti ts passage is quite certain to be followed by similar legislation in their behalf.

The outcome of the agitation in England seems to be the strongest possible evidence of the necessity of a pension policy for teachers. Without a measure of this kind the most faithful and competent teachers are in danger of coming to want in their old age, or must often be retained in active service long after the time when they are able to discharge its duties effectively. If anything could add force to the English demand it would be the fact that Ontario, whose system of education bears in every feature the stamp of the master-mind of Mr. Ryerson, maintains a superannuation fund.

The British colonies, as a rule, have not yet evolved this provision. In the Australian colonies salaries average well. Moreover, as in parts of our own country, occupations are easily changed, and teaching is for the most part a stepping-stone to something more lucrative. This is, however, a condition which necessarily passes away as population increases, social conditions assume a fixed state and business competition becomes more keen. A ripple of the movement which has been traced above is already noticeable in the newly federated Australian States. Meanwhile liberal pensions are granted in special cases. Thus in 1885 twelve teachers in South Australia received retiring allowances averaging $815 each. In New South Wales a teacher of music in one of the

Training Colleges received $4170 on withdrawing from the work.

The survey above presented discloses a universal drift toward the pension policy which is certainly not accidental. It is all but universally admitted that the education of the young is a public duty. Even Tolstoï, who scouts all accepted systems of education, does not deny the necessity of the thing itself. The theory that the rates of compensation for teaching can be left to the action of ordinary business principles is thoroughly exploded. It is a matter to be regulated by the State, and the State cannot afford to keep its teachers on starvation salaries.

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IV.

TWELVE *VERSUS* TEN.

To the solid ground
Of Nature trusts the mind that builds for aye.
WORDSWORTH.

In any developed system of numeration there must be a turning-point, at which the notation is folded back upon itself, and from which point on the higher numbers are to be expressed by additive and multiplicative processes through the lower. The number that forms thus at once a point of rest and a point of departure may be called the *base* or *radix* of the system. The rising powers of this base are set in order leftward, and the falling powers rightward, of the initial or unit's position. Any natural number other than unity may be taken as this radix, and, in fact, various integers, as two, five, ten, twelve, twenty, sixty, have been taken. Among all of these, however, *ten* has attained by far the widest and most complete recognition, and within the present century the metric decimal system has established itself firmly in western and central Continental Europe, as well as among men of science everywhere. Nor can there be any doubt of its immense superiority as a labor-saving device over every rival, so long as ten is made the turning-point in our notation. In fact, the thorough-going adoption of it or of its equivalent must follow in time as a natural logical outgrowth of a reversion of our notation back upon itself at the ten-point.

This preference for ten as radix does not, however, rest upon any natural or spiritual basis, upon any inherent fitness of ten itself to discharge this supreme function in arithmetic, but solely upon a physical peculiarity of the counting animal, man. He is a pentadactyl, he has ten fingers. Inasmuch as elementary reckoning is almost always done on the fingers in its first stages and by the young, whether in individual or

educational or national life, it was almost inevitable that ten should be taken as the point of reflection. If only one hand be used, then five presents itself as radix, or if both hands and feet, then twenty, and both of these numbers have indeed served as radices.

But none of these related integers has any intrinsic fitness for the office in question. To be sure, ten is resolvable into the factors two and five, and the first of these is important—the operation of taking the half is so frequently necessary; but not so with five—we have comparatively little use for fifth parts, while on the other hand we meet with thirds and fourths at every turn and in every department of life. But ten is not divisible by either three or four and stands in no simple relation to either six or eight, two other important numbers. These are very serious defects in ten as a radix, and they encumber very gravely all reckoning and especially practical calculation in the denary system or with decimals. Thus, the constantly recurrent fraction $\frac{1}{3}$ is expressible only through an interminate decimal, $\frac{1}{4}$ requires two figures, $\frac{1}{6}$ is interminate as a decimal, $\frac{1}{8}$ requires three figures for its expression. These are very weighty burdens, which the general and final adoption of the decimal system will bind upon the back of humanity forever. Neither will any conceivable development of human intelligence lighten them in the least, for they inhere in the unalterable nature of the number ten.

But there is an altogether simple and easy deliverance lying ready at hand. It is the rejection of the unsuitable radix ten and the adoption of *twelve*, which is fitted perfectly and in every particular. It may be divided by two, by three, by four, by six; it is related simply to eight and nine. It is this superior divisibility that marks it out among all numbers as pre-eminently the *natural* radix, a divisibility shared with its own multiples only, as 24, 36, etc. It is the contention of this article that a change from the denary to the duodenary notation would be a great and much-needed simplification, above all to the practical man, and that it is entirely feasible. Let us examine the matter in detail.

1. Of course, the adoption of twelve as basis would necessitate the introduction of two new symbols for ten and eleven, since 10 would then no longer signify *ten* but *twelve*. This need, however, would be a mere trifle, and most easily supplied. Appropriate symbols may be readily devised, but we shall content ourselves for the present with the initals *t* and *e*.

2. The second step may be taken with equal facility: to invent a simple and consistent nomenclature. Manifestly the names thirteen, fourteen, twenty, thirty, hundred, thousand, must now lose whatever appropriateness some of them may once have had. But in devising new names we must obey the natural impulses of reason and linguistic sense as indicated in some of the names to be abolished. Instead of TY, the reminiscence of ten, in twen*ty*, etc., we may put *tel*, a like reminder of twelve. We recognize also the inevitable and irresistible tendency of frequent use to break down harder combinations of sound into easier ones, and we should adopt extremely simple forms at the outset. Here, then, is a body of terms that would at least answer perfectly our purpose:

One, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve; *tel* one, tel two, tel three, tel four, tel five, tel six, tel *sen*, tel eight, tel nine, tel ten, tel*len*, twen*tel*; twentel one, twentel two, etc.; thirtel, fortel, fiftel, sixtel, *sen*tel, eightel, ninetel, tentel, *len*tel; dipo, tripo, tetrapo, etc., N– po. The termination PO will be at once recognized as an abbreviation both of *power* and *position*, and in fact the second power of twelve occupies the second position to the left of the unit place, which latter counts not as the first but as the *zeroth* position. These names depart as little as possible from familiar ones and may all be learned in five minutes.

3. The superiority of twelve over ten as a radix will begin to be revealed in the multiplication table:

2× 1= 2	3× 9=23	5× 5=21	7× 1= 7	8× 9=60	t× 5=42
2× 2= 4	3× t=26	5× 6=26	7× 2=12	8× t=68	t× 6=50
2× 3= 6	3× e=29	5× 7=2e	7× 3=19	8× e=74	t× 7=5t
2× 4= 8	3×10=30	5× 8=34	7× 4=24	8×10=80	t× 8=68
2× 5= t	4× 1= 4	5× 9=39	7× 5=2e	9× 1= 9	t× 9=76
2× 6=10	4× 2= 8	5× t=42	7× 6=36	9× 2=16	t× t=84
2× 7=12	4× 3=10	5× e=47	7× 7=41	9× 3=23	t× e=92
2× 8=14	4× 4=14	5×10=50	7× 8=48	9× 4=30	t×10=90
2× 9=16	4× 5=18	6× 1= 6	7× 9=53	9× 5=39	e× 1= e
2× t=18	4× 6=20	6× 2=10	7× t=5t	9× 6=46	e× 2=1t
2× e=1t	4× 7=24	6× 3=16	7× e=65	9× 7=53	e× 3=29
2×10=20	4× 8=28	6× 4=20	7×10=70	9× 8=60	e× 4=38
3× 1= 3	4× 9=30	6× 5=26	8× 1= 8	9× 9=69	e× 5=47
3× 2= 6	4× t=34	6× 6=30	8× 2=14	9× t=76	e× 6=56
3× 3= 9	4× e=38	6× 7=36	8× 3=20	9× e=83	e× 7=65
3× 4=10	4×10=40	6× 8=40	8× 4=28	9×10=90	e× 8=74
3× 5=13	5× 1= 5	6× 9=46	8× 5=34	t× 1= t	e× 9=83
3× 6=16	5× 2= t	6× t=50	8× 6=40	t× 2=18	e× t=92
3× 7=19	5× 3=13	6× e=56	8× 7=48	t× 3=26	e× e=t1
3× 8=20	5× 4=18	6×10=60	8× 8=54	t× 4=34	e×10=e0

We may add $10\times 10=10^2=100=$ Dipo.

We note that since 100 in this system equals 144 in the common system, the range and efficiency of our table are increased by 44 per cent. More than this, however, it is much simpler than the ordinary. The multiplication by five and ten is indeed less simple, but the multiplication by two remains as simple as before, multiplication by eleven becomes as simple as was multiplication by nine, while multiplication by three, four, six, seven, eight, nine is much simplified. For each of these, except seven, there is a simple cycle, through which the last figure in the product moves: for 3 the cycle is 3, 6, 9, 0; for 4 it is 4, 8, 0; for 6 it is 6, 0; for 8 it is 8, 4, 0; for 9 it is 9, 6, 3, 0. The cycles for 3 and 9 are conjugate, each the reverse of the other, and so are the cycles for 4 and 8, while the cycle for 6 is its *own reverse*, it is *self-conjugate*. The cycles for 5 and 7 are conjugate, and each involves all the primary numbers. It is plain that in any system the cycles of two conjugates (whose sum is the base) will be conjugate and that the sum of two corresponding digits will be the base. The successive even multiples of 7 end in the successive even numbers, while the

first digit is half the multiplier—circumstances that greatly simplify multiplication by this number. Every third multiple of 5 ends in the multiplier. Squares of multiples of 6 end in 0, squares of all other even numbers end in 4; squares of prime numbers (except 3 and 2) all end in 1; squares of numbers ending in 3 or 9 end in 9. The ordinary table furnishes no parallels in simplicity to these relations. Factoring becomes comparatively easy in this duodenary scale. Even numbers are of course recognized at once, all ending in 0, 3, 6, or 9 are divisible by 3; ending in 0, 4, or 8 they are divisible by 4; ending in 0 or 6, they contain the factor 6; ending in 0 or 8 preceded by an even digit, or in 4 preceded by an odd digit, they may be divided by 8; and so on.

4. The common useful fractions are easily and simply expressed in duodecimals; thus, $\frac{1}{2}$=.6, $\frac{1}{3}$=.4, $\frac{1}{4}$=.3, $\frac{1}{6}$=.2, $\frac{1}{8}$=.16, $\frac{1}{9}$=.14—a most important consideration; while the expressions for the practically useless fractions are interesting though interminate: thus, $\frac{1}{5}$=.24972. . . , $\frac{1}{7}$=.186t351. . . , $\frac{1}{t}$=.124972. . . We observe that the repetend in $\frac{1}{5}$ and in $\frac{1}{t}$ is the same, while in the repetend of $\frac{1}{7}$ we have 1+t=8+3=6+5=e. Other curious relations may be traced out.

5. The expression of large numbers becomes measurably conciser; thus, all below 144 (in the present system) are expressed by two figures at most; all below 1728 by three figures at most, all below 20736 by four figures at most; and so on. Inasmuch as it is *at least* as easy to multiply in the twelve as in the ten scale, this reduction in the number of figures corresponds to a proportional reduction not only in mechanical but also in logical labor.

6. In the expression of irrational numerics through duodecimals a much higher degree of accuracy is obtained than by the use of the same number of digits in decimals. Thus, in dropping all decimals beyond the second place, the error committed is less than one-half of $\frac{1}{100}$, but in duodecimals it is less than half of $\frac{1}{144}$; so the other corresponding errors in the two systems are less than half of $\frac{1}{1000}$ and $\frac{1}{1728}$, $\frac{1}{10000}$ and $\frac{1}{20736}$ and so on. In a 7-place logarithmic table the error introduced in the use of

the 7th digit is less than half of $\frac{1}{10,000,000}$, in the duodenary system it would be less than half of $\frac{1}{85,111,808}$; a fivefold accuracy is gained without additional labor. Similarly in the inverse use of the table.

All the foregoing advantages lie securely rooted either in the slightly superior size or in the greatly superior divisibility of the number twelve; they are all intrinsic and inalienable. The following have an importance at least equal, but of another nature—extrinsic and derived from certain immemorial prescriptions in which twelve has successfully asserted its higher claims as the *natural* radix. Thus, there are twelve months in the year and twelve hours in the half day. Both these divisions of time may—one might almost say must—stand, but they are inconvenient so long as ten dominates our calculations. Let us consider.

7. The circle of the clock-face is divided into twelve *hours*, each of these into 60 *minutes*, each of these into 60 *seconds*. On the other hand, the circle, or round angle, is divided into 360 degrees, each of these into 60 *minutes*, each of these into 60 *seconds*. The origin of this sexagesimal division is very interesting, but its perpetuation is very unreasonable, unnatural, and bewildering; it vexes and confounds the child's mind, and consumes time to no purpose in every conversion of longitude and time into each other. Let the division into twelve hours stand; but let it be of the half-circle, so that the whole circumangle shall be divided into 24 (or in our notation 20) hours; divide each of these into twelve grades, each of these into twelve primes, each of these into twelve seconds, and so on. The metric number of the half-circle or straight angle, radian being unit, is π; hence the quasi-equation $\pi = 10$. In a round angle there will be 200 grades, in a straight angle 100 (dipo), in a right angle 60, in a sextant 40, in an octant 30; the other important angles (of 30 and 15 degrees) will contain 20 (twentel) and 10 (twelve) grades. Surely this would be a great simplification, shunting an enormous amount of labor and confusion. The grade, corresponding to five minutes of time, would be a very convenient standard of reference. We

should then say "in a grade," as we now say "in five minutes" or "in a minute" (meaning "five minutes").

8. Our present division of the year into twelve months of unequal length is puzzling, irrational, and inconvenient. Let there be twelve months of thirty days each, and let the year begin at the vernal equinox, the natural starting-point. There remain five days to be disposed of. Let these be legal holidays with special names, extra-mensual, belonging to no month. Let them mark the stations of the sun's progress through the sky and be: New Year's day, first quarter-day, mid-year's day, second quarter-day, Old Year's day. They might otherwise be named *Vernequid*, upper *Solstid*, *Autumnequid*, lower *Solstid*, *Vernequin*. Leap year would require the intercalation of a day at mid-year, which might be called *Autumnequin*. The lower *Solstid* would coincide practically with Christmas, and the sacred festival might be transferred without perceptible jar to that day, for symbolic reasons the most appropriate in the year for the feast in question. On the other hand the upper *Solstid* would nearly coincide with the Fourth of July, and both our national celebration and the French fête of the Fourteenth might easily be slightly shifted without offense to the patriotic conscience. The two solstids would then stand, the one for our political, the other for our religious, faith. The names of the months need not be changed; it would suffice to push their beginnings ten days backward. Even in modern times greater changes have been made in the calendar.

9. Our coinage could be made duodecimal with very little trouble. We need only reduce our *quarter* to twenty-four cents, or count it as twenty-four cents, and adopt it as unit. The twelfth would be a penny, which might of course be still further sub-divided, though there would be little use for lower denominations. The twelve-quarter (tel-kar?), about three dollars, would take the place of the current V, which is rather inconveniently large for most of us in these days of low prices and lower salaries. The ease of dealing with thirds and fourths would be greatly valued by the man of business, while

the reduction in value of the unit would put the whole Anglo-Saxon world in line (quarter=shilling=mark, practically or with slight adjustment), and what is far more, it would be an important lesson to the masses in domestic economy. *Four marks* may not quite equal *one dollar*, but it sounds bigger and we should be more careful in spending it. *Experto crede.*

10. The fundamental measurement is of *length*, and the most important of all units is the *linear*. The hunt for a *natural* unit of length is to be sure a very interesting and instructive one, especially inspiring when led on by such "winged hounds of Zeus" as Maxwell and Thompson. As for practical results, however, it is a kind of red-fox chase, yielding much fun but little fur. It is in vain that the *meter* professes to be the ten-millionth of a quadrant through Paris; it is no such thing, and even if it were,—*cui bono?* It is really a purely arbitrary length carefully preserved. Any other standard will in last analysis prove to be equally arbitrary. The British *yard*, familiar to all of us, is as good as any. It is already divided into twelfths, each of three inches. Call this twelfth a *trinch*. The twelfth of this last would be our well-known quarter-inch, a very convenient unit for small lengths and, of course, capable of any degree of sub-division. For greater measurements we have already at hand the *mile*, 1760 yards, or, with a slight accommodation, 1728, that is 1000 (tripo) yards. For the immense stretches of astronomy the square, or even the cube, of this would be suited. So we may pass from the decimal to the duodecimal system in this cardinal matter with hardly a jar and with loss of naught but impedimenta. The areal and voluminal units would, of course, be the squares and cubes of the linear units; the mass-units would be the mass of the voluminal unit of some standard substance under standard conditions. Other derivative units require no notice.

11. The operations of mercantile and commercial as well as of mechanical life would be greatly shortened and facilitated by the change proposed. For example, a movement of the duodecimal point one place leftward would convert yearly into

monthly interest. Multiplication and division by three and four, so important in "business," at every step would check each other.

The construction of instruments for all kinds of measurement, whether of commerce or of scientific precision, would be made easy and their correct use facilitated.

Most of all, however, the enormous burden of learning, retaining, and using our tables of weights and measures would be rolled off once and forever in one huge mass from the minds of the coming generation. How great is the load that our forefathers, unknowing what they did, have bound upon the shoulders of their descendants is felt keenly, if only in part, by every pupil and every teacher. Like the superincumbent atmosphere, it presses on us continually and continuously, at every point both of time and of space. For this very reason we cannot come to perfect consciousness of the oppression. But once relieve it, and see how the elastic mind of youth will revive and erect itself, once more a freeman. Adopt the duodenary system *in toto*, and you despoil at one stroke the great giant Arithmos of his most formidable terrors. Nay more, you will add a full year, now so greatly desiderated, to the life of every youth that attains majority.

12. The complete triumph, either of ten or of twelve, is assured. The incoherences of our present system are universally recognized, and the structure cannot long withstand the blows of Example and of Reason. But the victory of ten would certainly be deplorable, for it would exalt body over spirit, and fasten clogs forever on the feet of humanity. The denary system can lay no claim to finality, as being the best either conceivable or practicable; it leaves much to be desired. But the duodenary *is* the best conceivable, the best that the *nature of number* admits. It and it only can pretend to be an absolute finality.

13. The triumph of ten is the triumph of the Kelt, of Latin civilization. The Anglo-Saxon, truer to the nature of things, still clings here and there to twelve. And shall he at last meekly resign himself to artificiality? Shall the historian of

the fourth millenium record that France imposed upon the superior Anglo-Saxon race her own inferior notation? Here is opportunity and also occasion for our proud lineage to assert itself, as the roof and crown of humanity, by one bold stroke that shall smite from our intellectual limbs the shackles of centuries and leave them strong and nimble and free. But especially it is the privilege of America to advance herself at one giant stride to the forefront of the world, not only in politics, but also in practical intelligence, by adopting consistently and thoroughgoingly that metric and numerical system which, once introduced, must surely and speedily subdue all others to itself. What other conceivable feat, either of peace or of war, could so glorify our intelligence and civilization as a people?

But some one will say, "after all, is the change *practicable?*" The discerning reader might be left to answer for himself. The change to the decimal system has been proved by actual experiment to be practicable throughout western and central Europe. The change to duodecimals would be even easier for us, because twelve already lies deep-rooted in many of our notions and modes of measuring. The only peculiar difficulty about this change is in reality a very slight and unimportant one, namely, we need two new symbols (for ten and eleven), a new termination (for multiples of twelve), and a half-dozen new names (for powers of twelve). But any foundry can cast the symbols, the ending *tel* is ready at hand, and the new names are coined and learned in a moment. This done, learning to count, add, subtract, multiply, divide in the new system is not the work of a day for the adult mind, and would be easier for the child than the tasks he now has to master.

To be sure, there would be a great inertia of custom, ignorance, and prejudice to overcome, but these oppose themselves alike to all progress.

A thorough-going adoption, either of the decimal or of the duodecimal system, is unavoidable and impending. If we choose the latter, all future generations will rise up and call us blessed; if the former, then we shall put into the mouth of

posterity, but with sharper emphasis, with wider application, and with deeper meaning than ever Mephistopheles dreamed of, the just complaint:

Es erben sich Gesetz, und Rechte,
Wie eine ew'ge Krankheit fort;
Sie schleppen von Geschlecht sich zum Geschlechte,
Und rücken sacht von Ort zu Ort.
Vernunft wird Unsinn, Wohlthat Plage;
Weh dir, dass du ein Enkel bist!
Vom Rechte, das mit uns geboren ist,
Von dem ist, leider! nie die Frage.

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V

DISCUSSIONS.

WOMEN AS TEACHERS.

The general conference of the Joint Education Committees of Wales and Monmouthshire has undertaken to collect systematically certain definite information regarding the success of women as teachers. A number of the question-blanks were forwarded to this country, and it is now possible to lay before the readers of the EDUCATIONAL REVIEW a summary of the answers that have been received and transmitted to England. The Commissioner of Education and the Superintendents of representative cities in which large numbers of women are employed as teachers, were invited to answer the inquiries. The Commissioner of Education responds, giving his impressions and conclusions regarding the United States as a whole, where the last census shows that 65.5 per cent. of the entire teaching body, or 238,333, are women. Each Superintendent responds for his own city, the number of women teachers in the public schools being as follows: New York, 3282; Chicago, 2811; Philadelphia, 2601; Brooklyn, 1968; Boston, 1308; Cleveland, 733; Jersey City, 393; Denver, 260. The questions and answers are appended:

I. Are women employed as teachers of classes either (*a*) of boys only, or (*b*) boys and girls together?

The Commissioner of Education: In the schools of the United States, women are employed as teachers of classes in many schools exclusively for boys, but the employment of women as teachers of classes of boys and girls together is much more frequent.

New York: (*a*) Yes; (*b*) Yes.

Chicago: (*a*) There are no exclusively boys' classes; (*b*) Yes.

Philadelphia: (*a*) Yes; (*b*) Yes.

Brooklyn: (*a*) Yes; (*b*) Yes.

Boston: (*a*) Yes; (*b*) Yes.

Cleveland: (*a*) No separate classes for boys; (*b*) Yes.

Jersey City: (*a*) Yes; (*b*) Yes.

Denver: (*b*) Yes.

II. If so, (1) in what subjects; (2) to children of what ages; (3) of what classes of life?

New York: (1) In all the subjects assigned to the class. (2) No rule as to age. All teachers in the primary schools and departments are female. In male and mixed grammar departments, the lower and middle grades are taught by women. (3) All classes.

Chicago: 1. All subjects in primary, grammar, and high school grades. 2. From 6 to 20. 3. All classes.

Philadelphia: 1. All the branches of the public school course. 2. Children from 6 to 14 years of age, and also the young women in the Girls' High and Normal Schools. 3. Children of rich and poor alike.

Brooklyn: 1. All the subjects taught below the High Schools. 2. All ages—minimum 5 years, maximum about 16 years. 3. All classes.

Boston: Women teach all the branches in the public school course, to children of all ages and of all classes in life.

Cleveland: 1. All the subjects taught in the first eight years —arithmetic, grammar, geography, history of the United States, reading, writing, spelling, drawing, music, and physical training. 2. From 6 to 14 years. 3. All classes.

Jersey City: 1. All except High School. 2. All ages. 3. All classes.

Denver: 1. All. 2. From 6 to 21 years. 3. All.

III. How far are they successful (*a*) in giving intellectual training; (*b*) in maintaining discipline and order?

The Commissioner of Education: Women, I think, as a rule succeed better than men in getting work out of pupils of all kinds. The intellectual training which they give is therefore better up to a certain point, than that given by men. They also maintain better discipline and order than men, and with less corporal punishment. But there is a drawback to the intellectual training and discipline of the women in the fact that their training is more like that of the family and less like that of the State. It is evident that the child needs both of these kinds of training, and therefore he should have instruction from male as well as female teachers.

New York: No reason to doubt their efficiency in either respect.

Chicago: They stand on an equal plane with men in both respects.

Philadelphia: Women are very successful in both respects; they are fully equal to men in maintaining order.

Brooklyn: There are, of course, marked differences in the personal ability, power, and skill of teachers, both male and female. In general, women are fairly — many of them, eminently—successful in both respects.

Boston: Women are entirely successful in both particulars.

Cleveland: (*a*) Eminently successful. (*b*) Very satisfactory.

Jersey City: Successful in both respects.

Denver: Successful in both respects.

IV. Does their work under any of the foregoing heads require supplementing by that of men?

The Commissioner of Education: The work of women in any of the grades from the primary up to the college does not need supplementing by men for any reasons of scholarship, but it is generally believed that the young should have the personal influence of both men and women as teachers. As a class the women are apt to be minute and exacting, and this, when it develops into a fault, takes the form of petulance in manner and mechanical precision in methods. The men are more apt, as a class, to discriminate in regard to essentials, and to teach their pupils to discriminate in regard to principles and essentials, and to lay less stress upon mechanical details. This tendency often degenerates into a carelessness in discipline and instruction which permits pupils to neglect details that are essential to progress.

New York: Each teacher is responsible for the instruction and discipline of her own class.

Chicago: College-bred men are employed in the upper grades of the High Schools.

Philadelphia: It is a great advantage for the work of women, especially in the upper grades and for boys, to be supplemented by that of men.

Brooklyn: No; until pupils pass out from the Grammar into the High Schools.

Boston: No; except that men are preferred at the head of large schools.

Cleveland: Not at all.

Jersey City: No.

Denver: It does not require supplementing, but is improved by "sandwiching."

V. How does their remuneration compare with that of male teachers of the same social and intellectual standing?

The Commissioner of Education: Some cities make no discrimination in salaries, but in general the salary of women is about 60 per cent. that of men.

New York: Salary of the principal of a male or mixed grammar school, $2250 to $3000; salary of a vice-principal of the same, $1800 to $2016; salary of a principal of a female grammar school, $1200 to $1700; salary of a vice-principal of the same $1000 to $1200; salary of a male assistant teacher, $1080 to $2016; salary of a female assistant leader teacher, $504 to $1116.

Chicago: The same for the same grade of work.

Philadelphia: In positions that may be filled by either men or women, the remuneration is the same for both.

Brooklyn: It is the same for the same grade of work.

Boston: For the same work the pay is the same. The only exception to this is the fact that male assistants in boys' high schools are paid higher salaries than women assistants in girls' high schools. Reason: It has always been so.

Cleveland: About the same, although we do not employ men below the high school.

Jersey City: It is about one-half.

Denver: Slightly less on the average, although often equal.

VI. In what proportion do married women act as teachers, and is it found that they are at any disadvantage as compared with those who are unmarried?

The Commissioner of Education: In those cities where married women act as teachers, I think it is often found that they have an advantage as compared with those who are unmarried; but the tendency in cities is to discriminate against married women. Some have gone so far as to exclude them by rule from the corps of teachers.

New York: "Should a female teacher marry, her place shall thereupon become vacant. No married woman shall be appointed teacher or principal without the consent of a majority of all the members of the Board of Education."—*By-Laws*, Sec. 44.

Chicago: Teachers are permitted to marry without let or hindrance. Many of the best teachers are married women and mothers.

Philadelphia: There are a few married women who teach in the public schools, and it is found that they are at no disadvantage.

Brooklyn: The proportion of married women is small. The

disadvantage, if any, under which they work is not so marked as to call for special notice.

Boston: There is an unwritten rule against employing married women, but they are employed to the extent perhaps of one or two in a hundred. They are excellent teachers.

Cleveland: A few are employed and they are unusually strong teachers.

Jersey City: There are few married teachers, say 3 per cent. They are at no disadvantage.

Denver: Numbers of married women are employed, always with equally good, and often with better results.

THE EDITORS.

CITY SCHOOL SUPERVISION.—II.

The superintendent in entering upon a new field of labor very naturally takes a full survey of the entire situation. Having informed himself of the financial resources and liabilities of the district, he proceeds to make an inventory of the school work proper. This he cannot do till he inspects the work in the most thorough manner. He starts in with his ideal as to what a school or a system of schools ought to be. If the Idea be the foundation for a system of philosophy, the ideal in the superintendent's mind is the guide which determines his efforts in securing the best results with the means at his command. In making up his inventory, it is certainly the part of wisdom to keep matters largely, or almost exclusively, to himself, except in so far as he communicates to those in authority over him. Having determined the condition of a school or a system of schools, the next step is to pick out the strong points and set them off by themselves, and then to note all the weak and sore spots and catalogue them. Defects must be conquered in detail, by attacking one at a time. To point out a fault and not to provide a remedy for it, is to employ the destructive process without the ability to reconstruct something better than what has been displaced. It is a principle in the common law that wherever a wrong exists a remedy is provided for it, and the same line of action is, or ought to be, true in all school work.

When the superintendent sets about improving the schools under his control, three or four courses are open to him: He may work exclusively with the Principals; he may work with

Principals and teachers; he may work with the teachers, or he may work with some of the Principals and with some of the teachers.

I. To work exclusively with the Principals implies that the superintendent and his assistants, if he has any, advise with the Principals, and they, in turn, are to carry out the separate lines of policy in detail. This may be termed, for lack of a better name, military supervision—pretty good for the field, but not worth much in school work. It relies too much on the executive qualities of the Principals. This plan is not attempted except in very extensive systems, and yet it is sometimes aped under less imposing conditions. To insure its success, each Principal must be thoroughly qualified for the position he occupies, a condition not likely to occur in practice.

II. Coming in direct contact with both principals and teachers appears to be a more rational way of getting at the work. All good teachers like to be known to the superintendent, not only through the assistant superintendents and principals, but as individuals. It always pays to know the teachers individually. The feeling that in any event they will be treated justly by those who look after their work, goes a long way in improving the work of any set of teachers. There is only one force which produces first-class work, and it is that which comes from glad and voluntary effort. Cheerful work tells with both pupils and teachers.

III. In a large system, the superintendent cannot give his time exclusively to the teachers. There are so many demands upon his time that he is obliged to distribute it among many different persons and things.

IV. To work with some of the principals and some of the teachers, and practically to neglect the others, is so unjust that few would have the hardihood to attempt it. Yet it is sometimes done, owing to the unfortunate conditions existing in some cities.

The superintendent can choose one of these separate methods of work, or he may combine any two or more of them. To adapt himself readily to the environment is one of the essential qualifications which insures improvement or change with the least resistance. A school or system will always run for a time by virtue of its own inertia. By watching this movement a little, the superintendent is afforded an opportunity for studying the system in all of its relations.

Whenever one proposes a change, he is forced to consider whether the means at his command are adequate to effect what he wishes. It is one thing to discern an error or fault, and another thing to be able to correct it entirely. This question resolves itself into one of means and ends, or the measure of intelligent energy necessary to change the direction of the habits and modes of thought of a body of teachers. As a practical illustration, the superintendent decides to advise with the principal as to the strong and weak places in his school, and if the principal is able, capable, and discreet, he may then help each poor teacher to do better work. Of this, the superintendent must be the judge. As is well known, some principals irritate and weaken their teachers instead of helping them, and the same is doubtless true of the proffered assistance of some superintendents. This suggests another quality that should always exist in the superintendent and in the principal, namely, that of being able to approach teachers in a helpful spirit and without confusing and unsettling them. It is a question to be carefully considered which is the better person to give the teacher the needed assistance. The utmost frankness, not rudeness, should exist between the superintendent and principal, and unless the relations are entirely cordial between the principal and the teacher, the superintendent should speak with the teacher directly. This conversation ought to be entirely informal, and by adroit questions the teacher's opinions concerning all the points of his work should be fully ascertained. The teacher sees his school under one perspective, and if it be not the correct one, then the superintendent must help him to see it from his standpoint.

An efficient aid in supervising is the holding of meetings, weekly and monthly. At the principals' meetings the general policy of the schools is to be outlined, not by set speeches or rhetorical papers, but in a full, free, and candid talk. Here opinions from the more experienced and sagacious principals are expressed and the young, cranky, and unwise ones are greatly benefited. It is in such meetings that the superintendent has the best opportunity to bring forward what he regards as the best and freshest results from some of his own schools or from other schools. By taking what is the best in each good school and working all up to these highest attainments, he will produce a very strong system. To incorporate the

best from many into each, is probably the true aim of supervision.

The superintendent may also do much in holding teachers' meetings, and if the corps be a large one, then the meetings should be held for separate grades. Instead of holding these as lecture or preaching meetings, definite subjects, such as are taught in the class-room, should be discussed. These discussions may fall under three separate heads: (1) The educational significance of each branch and how to teach it; (2) The manner, form, and spirit of discipline, and (3) New experiments in teaching at home and abroad. In all such discussions the teachers should be urged to participate freely, and among others of their own grade they are usually much readier to speak than in a promiscuous assemblage.

From among the best grade teachers the superintendent can always find some who are willing and anxious to try new experiments.

Connected with every system, there should be some experimenting rooms. The few reliable teachers should try the new experiments under the advice of the superintendent and principal, and after due trial, if an experiment is found worthy, it can be very easily introduced into other rooms. It is not safe for all teachers to experiment. Another danger consists in not knowing when or how to experiment. Growth does not come from standing still and repeating the same little processes day after day.

If the superintendent criticises in a general way at a teachers' meeting, no one takes the criticism personally, and hence it falls flat. A specific criticism followed by a specific remedy will always give the teacher a working basis, and whenever rubbish is cleared away, there is left a clean spot upon which to build.

A school system should not always present an even, unbroken front line. A wavy line appears more natural, and it indicates the progress of ambitious and skillful workers pushing onward and outward.

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PRACTICE TEACHING IN NORMAL SCHOOLS.—II.

APPRENTICESHIP IN TEACHING.

For reasons which will presently appear, I have given to my topic a title somewhat different from the one that was proposed to me by the editors. I am not orthodox in my opinions with respect to practice teaching in normal schools; and this paper will embody marked dissent from the received standards of belief and practice.

Universally throughout the West, so far as I know, and quite generally throughout the North and East, there is attached to normal schools what is called a practice or experimental school; that is, a school in which the students in training serve a sort of apprenticeship in teaching children in the various elementary branches for a specified number of hours a term or year. These schools sometimes represent the twelve grades of the common-school course, and sometimes a smaller number. Each distinct department of the practice school has its regular or responsible teacher who presides while the apprentice work is in progress; and over all is the critic teacher whose function is to witness the giving of the lesson by the tyro, and at an appointed hour to call together these pupil teachers and make a critical estimate of their performances. Each trial lesson is observed by a certain number of the student's classmates, who note the weak and the strong points in the exercise; and during the inquest they are summoned to express their opinions on the work they have witnessed. The judge or arbiter is the critic teacher, who gives a final estimate and summing up of each case. This is the usual *modus operandi*, as I have witnessed it in representative schools, and is my text for a few observations.

The general allegation that may be brought against this practice teaching is that the conditions under which it takes place are so artificial and unnatural that it is more likely to be harmful than helpful to those who take part in it. The student teacher knows that the pupils whom he is attempting to instruct are not his own and that he is only remotely responsible for results, seeing that they depend on so many others beside himself. His pupils are conscious of the same fact and owe no special allegiance to their temporary teacher.

It would be an abuse of language to call this real teaching.

And what stuff must a youth be made of, who can teach in the presence of five or six official critics, who with pencil and note-book in hand, are spying out the slightest departure from the established code of methods? Each question, each response, even each inflection and gesture must square with the code or the penalty will be paid when the hour of inquest comes. The artificial is at a premium; the student teacher is inevitably and strongly drawn away from the spontaneous and the natural toward routine and mechanism, which are the vices engendered and cultivated by this process of "training."

And what shall be said of the formal inquest, when, in the presence of the principal, heads of departments, teachers of methods, critic teacher and pupil critics, the student teachers are called up for trial? These official critics must criticise, for this is their function. Not to note a fault or find one would be neglect of duty; and the proof of critical penetration is to discover latent faults that lie too deep for common observation. And so the stock criticism is hypercritical. As there is an established code of methods, so there soon comes to be an established code of criticisms, and these speedily degenerate into cant. I have witnessed more than one of these sad spectacles, but I have no recollection of having heard a word of approval for anything done by one of these unfortunate students during his trial lesson. Under the conditions it is hardly supposable that any really good teaching could be done; but I have occasionally seen bright young people give a lesson which had some decided merits, which the official critics passed over in silence.

Teaching of high quality, that into which a gifted man or woman throws his whole personality, will escape all set rules and stereotyped methods, and, while obedient to the requirements of a general principle, will admit of countless variations and adapt itself to the special lesson, class, and occasion. One of the teacher's highest endowments is versatility, and to create this power ought to be one aim of professional instruction. Now it must be apparent that the general and almost inevitable result of the processes I have described is to mechanize instruction and to substitute "devices" and "methods" for living power. I think it must be admitted by all impartial observers that normal-school training has not been favorable to the development of personal talent and power in teaching; and I believe this fault is traceable to the

system of practice teaching which is in such vogue in our professional schools.

An invaluable adjunct to a normal school is a primary school, in which students in training may observe the finest results of the teaching art, in the way of organization, discipline, and instruction. It is needless to say that a practice or experimental school can never be a school of this type; for so many crude hands and heads can never produce a piece of high art. A school of observation should not be a pedagogical clinic for the exhibition and cure of abnormal processes, but a model of what is best in the art of teaching, and one which can safely be reproduced by the students who observe its organization and working. If students have been properly instructed in the general principles of education and teaching, and have made a study of their application in a school of normal type, they are, in my judgment, serving the only apprenticeship that is necessary, and the only one that is not subject to grave dangers. Teaching is an almost wholly spiritual act or art; and the best preparation for it is a clearly defined idea of what a good school is, a knowledge of general principles, and the untarnished enthusiasm of an amateur.

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RECENT CHANGE IN THE REGENTS' EXAMINATION IN THE STATE OF NEW YORK.

In 1865 the first Regents' examination was held on questions issued by the Regents to the schools under their visitation. The object of these examinations was to ascertain what students in the academies could properly be included in the annual distribution of the Literature Fund. The branches included in the first examination were arithmetic, geography, and grammar. Spelling was added in the examination of November, 1866. At first the questions furnished by the Regents were either dictated to classes of students or written on blackboards before them. It soon became evident that the best results in a written examination could be reached only by furnishing each candidate with a printed set of the questions. This has been done since November, 1866, and since

1870 all answer papers considered by the principal entitled to pass with an average of 75 per cent. have been reviewed at the Regents' office. Since 1882 a pass card has been given to each pupil upon his passing in one or more branches; and beginning with November, 1866, a preliminary certificate has been issued when the pupil has passed in the four branches mentioned.

In a brief time the design with which the examinations were organized was largely lost sight of, and they became standards of scholarship in the academies of the State. This fact led to an urgent demand from the schools for examinations in the advanced subjects taught in the academies, and in 1878 such examinations were organized. In 1880 a syllabus was first issued giving an outline of 36 subjects, 35 of which were suited to the test of a written examination and taught in the secondary schools of the State. A certificate of progress was given when the candidate had passed in algebra, United States history, physical geography, physiology, and rhetoric, or in algebra, United States history, and four books of Cæsar's Commentaries. A diploma was issued upon the completion of the academic or of the classical course. In 1882 a new edition of the syllabus was issued, including two additional subjects; and in 1888 a second revision was made and four more subjects were added, making forty-two in all.

In the new syllabus of 1891 the 58 subjects in the examinations have been arranged in five groups according to their cognate relations, as follows: I. Language and Literature; II. Mathematics; III. Science; IV. History and Social Science; V. Other Studies. A unit of work, representing one hour a day, five days a week for 10 weeks, has been assumed, and each subject has been assigned units or "counts" on this basis. In most cases two counts, or 20 weeks' work, are given each subject, but the first year in Greek, Latin, German, French, the second and third years in German and in French, and arithmetic and algebra are each allowed 4 counts; Vergil's Æneid and plane geometry, each 3 counts; and Greek prose composition, Sallust's Catiline, Ovid's Metamorphoses, Vergil's Eclogues, Latin prose composition, solid geometry, plane trigonometry, Greek history, Roman history and ethics, each one count.

Academic certificates are now issued for 30, 40, 50, 60, etc., counts; a medical student's certificate for 16 counts in cer-

tain required subjects, or for any 20 counts; and a law student's certificate for 19 counts in certain required subjects, or for any 30 counts. Each of the three diplomas requires 50 counts, the academic diploma providing that six counts be taken from each of the first three groups and six from groups IV and V combined. The classical (college entrance) diploma omits Sallust's Catiline and Vergil's Eclogues and adds to the old requirement an examination in English composition, first year Latin, first year Greek, physiology and hygiene, Greek history and Roman history. The English diploma is new and the course leading to it has been formed for the encouragement of better English scholarship. An advanced diploma is issued to the holder of one of the 50-count diplomas when he attains 10, 20, 30, etc., additional counts. An 80-count classical-scientific diploma is given upon the completion of the required course and is accepted for entrance to the professional class in the New York State Normal College.

The principal changes in subjects and methods have been made in English, in French and German, in Greek and Latin, in physics and chemistry, and in drawing.

The results reached in English grammar seemed to indicate that pupils who had passed the examination in that branch had not attained the facility in the use of the language, both in speaking and in writing it, that was desirable and that could justly be demanded as a result of the best instruction. The cause was thought to exist in the lack of the proper arrangement of the subject as prescribed for the examinations and in the need of more drill in the use of the language. Elementary English and advanced English have therefore been substituted for English grammar, and English composition and rhetoric for rhetoric. The elementary English and English composition as here outlined are intended to imply thorough drill both in the oral and in the written expression of thought; the advanced English and the rhetoric are designed to embrace a knowledge of technical grammar and the science of rhetoric, while requiring also the study of models of the best English and constant exercise in the attainment of a good English style. The study of the common prefixes and suffixes, and of about 100 stems in the elementary English and of about 100 in the advanced English, is introduced with a view to giving pupils a beginning in the logical study of the language, which will serve as a valuable acquisition to those

who can pursue the subject no farther, and as a proper basis for higher attainments in language to those who may have more extended opportunity. To insure constant exercise in the practical use of the language throughout these English studies, an essay is required in every examination in each of these subjects upon a topic taken from some work previously announced. The works announced for this year are, in elementary English, Robinson Crusoe; in English composition, Life of Washington; in advanced English, Enoch Arden; and in rhetoric, Webster's Reply to Hayne. An examination in American literature, separate from that in English literature, has been added, and will require besides the usual study of American authors and their works, that candidates commit to memory and reproduce in the examination upon that subject the choicest of our American anthems, popular songs, and patriotic selections. An examination upon an assigned course in English reading, including both English and American authors, completes the English language work. The changes in this department of the work have been made with a view to producing speakers and writers of good English, to developing taste for the best literature in the language, and to storing the memory of the pupils with selections which shall make our schools seminaries of patriotism.

In German and French the course of study has been made three years instead of one, the requirement for the first year remaining as before, but being supplemented by two years of work in more advanced grammar and in translation. No single author is assigned for reading, but several works of different authors are mentioned as indicating the grade of difficulty to be expected in the selections to be made for the examination in the second and in the third year of each of these languages. Selections to be memorized are announced beforehand and will be required in every examination.

The aim of the course is to familiarize the student with the spirit of the two languages by reading at sight, repetition from memory, conversation, exercises in reproduction, and composition.

In Greek and Latin an examination in first year work has been introduced as an encouragement to those beginning these languages, by giving due credit for work done before Cæsar's Commentaries have been read, and to give a more thorough test upon grammatical principles. In first-year Greek a list of

30 irregular verbs in most common use is given with their parts, familiarity with which is required in this examination. To the mathematical group advanced arithmetic has been added, embracing demonstration of principles as well as explanation of processes. It implies a review and completion of the subject after the student has pursued geometry and algebra, and is intended to meet the requirements in arithmetic for admission to professional work in the normal school.

In physics and chemistry, where before the whole subject was covered by the elementary and also by the advanced examination in each subject, the elementary examination in each will now include the first part of the subject, and the advanced examination the second part as outlined in the syllabus. This change, it is thought, is in the interest not only of more thorough but also of more extended scholarship in these subjects.

To the historical group general history has been added. The former examination in drawing, somewhat modified, has been made the advanced, and an elementary examination in form-study and drawing will serve as an introduction to the advanced.

All changes have been made after much consultation and careful consideration. They are intended to be for the encouragement of philosophical methods and sound scholarship, and in accordance with approved pedagogical principles. The system of examinations is the result of growth through the candid criticism and co-operation of the teachers of the Empire State, and this it is hoped will still be given as fully and as cheerfully in the future as in the past.

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THE NEW SCHOOL LAW IN ST. PAUL, MINN.

St. Paul has a new school law, which has some exceptionally good features and some exceptionally bad ones. The chief reason for securing a new law from the last legislature was the wide-spread dissatisfaction with the board of education, based mainly upon the ground of extravagance in the expenditure of public funds. The objects aimed at in the law were the

removal from office of the old board and the taking from its successor the power to incur indebtness and expend money *ad libitum.*

The old board of education was legislated out of office, and it was provided that the mayor should appoint a new board under different conditions. The new members were not to represent wards or districts, but to be chosen from the city at large and to hold office for three years. The corporate powers of the board were taken away and vested in the city. The power to decide what tax levy should be made for school purposes was taken from the board of education, and, with a maximum and minimum limit, was transferred to the city council. At the same time the city council was given other powers which restricted those of the board of education in regard to the expenditure of all funds.

These measures, as may be readily seen, were mainly in the interest of the taxpayer. In addition to these, certain other provisions were put into the law through those whose chief interest was in education and the children. The most important of these was the following:

"Teachers appointed by the said inspectors shall serve during the pleasure of the inspectors and shall not be subject to annual election; provided that all teachers so appointed shall have taught successfully in the schools of St. Paul for at least one year." Another was a clause making it the duty of the police of the city to co-operate with the school board in the prevention of truancy.

These are in outline the main features of the new law, and they may be classified very easily as good and bad. The good features are, first, the article providing for the appointment by the mayor of a small board of education, seven in number, who represent the city at large. This removes from the board the pressure of local and political influence, and makes it possible for an intelligent body of men to pass intelligently upon questions relating to the internal workings of the schools. Second, the permanent appointment clause. In importance, the latter should come first. As will observed, this is not very definite, and it is left with the board to devise proper regulations under which the law shall be enforced. The rules already enacted to this end are here given and speak for themselves: "All teachers appointed under the above rules shall be under probation for one semester, at the end of which,

unless there is, in the opinion of the principal of the school and the superintendent of schools, a reasonable prospect of success, they shall be dismissed. If, however, there is such a reasonable prospect, they may be continued in the schools for the remainder of the year, at the end of which they may either receive a preliminary certificate of success or be dropped from the roll. Teachers having received a preliminary certificate may be continued for another year, at the end of which they may become candidates for permanent appointment in the St. Paul public schools. Such candidates shall be required to pass an examination satisfactory to the superintendent of schools and the board of school inspectors upon the history and theory of pedagogy, and to present unqualified certificates of recommendation from the principal of the school in which they last taught and from the superintendent of schools. Teachers meeting these requirements shall receive the St. Paul teachers' certificates, entitling them to places among the permanent employees of the board. And those presenting certificates of success in teaching and failing in the examination required may, at the option of the board, be retained for another year of probation or at once dropped. Provided, that nothing in the above rules shall be construed to limit the power of the board to dismiss at any time any teacher or other employee because of moral delinquencies or of failure to properly perform the duties of their respective positions.

"The portions of this rule relating to permanent appointment shall apply to all teachers, principals, and supervisors at present in the employ of the board who have held their positions for less than two years. All others may, upon passing the required special examination and receiving the proper certificates, be at any time placed upon the roll of permanent teachers."

These rules make it possible for the St. Paul board of education to materially raise the standard of the teaching force, and to secure to the teachers that freedom from harassing fear of removal which comes periodically at the time of the annual elections. If this means that any poor teachers now in the corps are to be placed upon the permanent force, of course it will work disaster, but if the board exercises proper care in making appointments, it will work inestimable good.

Another good provision is the one requiring the police department of the city to co-operate with the school authori-

ties in the prevention of truancy. This, however, while new in St. Paul, has obtained for some time in other cities and does not need discussion. The details are left with the board to work out, and the experience of other cities will be consulted.

The principal bad feature of the law is the thrusting the financial responsibility upon the city council and bestowing upon it the power of curtailing the expenses of the schools beyond a reasonable limit, thus incidentally bringing the schools back into politics. The average city council in all cities is political in composition and appointed without special regard to interest in the cause of public education and acquaintance with it. A small board, such as St. Paul now has, can be appointed with special reference to these points. The danger is that the city council, for political reasons, will too greatly limit the powers of the board of education to spend money and will use such pressure as will cause the cutting off of some department or departments which they fail to comprehend or think unnecessary.

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VI.

EDITORIAL.

From the very full reports of the International Congress of Hygiene and Demography, held in London during the past summer, it is evident that great emphasis was laid upon the relations of both public and private hygiene to education and school life. The work of one section, that of infancy, childhood, and school-life, was entirely devoted to subjects of educational interest; and incidentally other sections drifted into discussions that have a direct educational application. The conviction has been growing of late that the physiological and hygienic side of education is the most important side, and the literature on the subject is increasing very rapidly. No teacher can be regarded as fully equipped for his profession who is in ignorance of all that modern science has to say upon this subject.

Dr. Francis Warner, whose publications in the study of children are familiar to readers of the EDUCATIONAL REVIEW, read a paper on "The Scientific Observation of Children in Schools." His conclusions were based upon an inspection of over 50,000 children, and were so well confirmed by the testimony of other speakers, that it was voted to recommend special arrangements for the training and education of the very appreciable number of children, who, though not imbecile, are found to be more or less defectively developed in brain and body. Another resolution of general interest is one that was passed after listening to two papers on the injurious physical effects that follow the habitual use of a "sloped" handwriting. It was as follows: "That, as the hygienic advantages of vertical writing have been clearly demonstrated and established, both by medical investigation and practical experiments, and that as by its adoption the injurious postures so productive of spinal curvature and short sight are entirely avoided, it is hereby recommended that upright penmanship be introduced and generally taught in our elementary and secondary schools."

Perhaps as valuable an educational paper as was read at the Congress was that by Professor Leo Burgerstein, of Vienna, on "An Experiment concerning Overpressure." He had prepared a diagram showing the curve of a working hour, as indicated by the varying brain-power of the children observed. The conclusions drawn by the author were twofold: First, that it is desirable that the question of mental overpressure should be studied by exact experimental methods, and that school authorities should instigate experiments in that direction; secondly, that until the question of overpressure has been thoroughly investigated by scientific methods, no school lesson should last longer than three-quarters of an hour, followed by a quarter of an hour's rest.

The other educational subjects discussed were school hygiene in Belgium, laws regulating child-growth, the physical education of children, manual training in its relation to health, free dinners for school-children, the education of the blind, the physical and manual education of deaf mutes, and acuteness of vision in school-children.

The French Academy of Moral and Political Sciences has had the subject of pedagogy before it for serious consideration. At a recent meeting M. Octave Gréard, the accomplished vice-rector of the Academy of Paris, presented a paper on "The Science of Pedagogy," which provoked a sharp discussion. M. Gréard insisted that pedagogy, while an art, is also a science, and that it has both an historical and a philosophical basis. Like all the moral sciences, it leads to action and influences conduct; but, by so doing, its character as a science is not lost. M. Courcelle-Seneuil, on the other hand, contended that all the so-called moral sciences, pedagogy among them, are in reality arts only.

The discussion has called out a vigorous expression of opinion in the French press, and M. Ravaisson may fairly be said to represent the majority of educationists, not only in his own country but elsewhere, when he points out that the science and the art of education may be distinguished but not separated.

For four or five years past, the State of New Jersey has been making educational history in a very satisfactory way. Many of the gaps in its educational organization have been

closed, and the whole attitude of the State government toward the school system has been sympathetic and progressive. The laws aiding the establishment of manual training, technical schools, and school libraries are admirably drawn, and their beneficial effects are felt all over the State. The State Normal School, at Trenton, has been reorganized from top to bottom, and now that it has taken possession of the new building erected for it, no school of the kind in the country is better prepared to do useful work in training teachers for the State schools. Physical training, manual training, and the experimental study of natural science are all amply provided for, and the State must feel the effect of the emphatic indorsement that the new education has received from this central institution.

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Of even greater importance is the new code of revised rules and regulations of the State Board of Education. These rules are the result of long experience and careful study, and the influence upon them of recent recommendations by the State Council of Education and the State Teachers' Association is very marked. It is doubtful whether any organizations of teachers have been more uniformly successful in securing immediate and favorable consideration for their proposals, than these New Jersey associations.

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Among the entirely new rules is one exempting graduates of colleges in good standing from an examination in the academic studies, prescribed for the several grades of license, the college diploma being accepted in lieu thereof, as satisfactory evidence of scholarship. This relaxation of the old practice which put the graduates of the college and of the district school on the same footing, is not only rational and commendable for its fairness, but it finds an additional justification in the premium it puts upon a liberal education. It will attract college-bred men to the teaching service of the State. So long as the college training failed to receive any official recognition of its value it is not to be wondered at that, in the eyes of many, broad scholarship and a liberal culture were of no special value to the public-school teacher.

Hence this act of the New Jersey State Board in putting a deserved premium upon a college education is to be hailed

with satisfaction everywhere, and will doubtless be imitated in other States where the contrary rule now prevails.

Another important change is the establishment of a regulation by which teachers' licenses issued in other States, under proper conditions, will be fully recognized in New Jersey. No little annoyance, not to say positive hardship, has often resulted from the fact that a certificate or diploma given in one State could not be officially recognized in another, thereby subjecting teachers, however capable and experienced, to a re-examination with all its inconveniences and anxiety. In New Jersey this rule will hereafter prevail: "The State Board of Examiners may indorse the diploma of any Normal School or Training College or the permanent certificate issued by a State Superintendent, or Board of Examiners, of another State, when the course of study of such Normal School or Training College, or the requirements for such certificate, are, in the judgment of the State Board of Examiners equivalent to those required for similar diplomas or certificates in this State; and when so indorsed, such diploma or certificate shall have full force and effect as if issued in this State." Of so liberal and sensible a rule as this, there can be but one opinion.

This and other changes that will undoubtedly attract general attention as they become familiar, are all in the direction of a more real and rational system of State control and supervision.

In a recent number of the *Saturday Review*, the London School Board is criticised in the most caustic manner for its "indiscriminating zeal in administering the compulsory attendance clause of the Education Act." It seems that in North London, within a single week, some sixty parents had been brought into court to answer for the non-attendance of their children at school. Among this number was one poor woman who brought with her medical certificates to prove that her child was suffering from an injured eye and broken arm.

The case of this unfortunate woman is made the text for arraigning the action of the Board in the whole matter as "a grossly unwarrantable prosecution," and "gratuitous indignity to the poor." Undoubtedly the officer of the Board charged with the enforcement of the law might have exercised better

discretion, provided the law gave him any discretion, than to put the parent, in this case, to the trouble and cost of appearing in court and proving the disability of the child. Still the principle of the greatest good to the greatest number ought to condone for an occasional case of hardship, which the experience of mankind has thus far found to be inseparable from the enforcement of every good law. The maxim that it is better for the ninety-and-nine to go unpunished rather than that one innocent man should suffer, cannot safely be applied even in education.

The admitted failure of compulsory education in most American cities is owing to our inability under the law to cite parents into court to answer for malfeasance in not sending their children to school. A little of the London rigor introduced into our methods of dealing with non-attendance would be altogether wholesome, and pave the way to many reforms that are now impossible.

At the opening of the new library at Cornell University, President Gilman of Johns Hopkins was the orator of the day. In a singularly felicitous address, abounding in happy illustrations, he described the function of the modern library as an educational force. The entire address is worthy of careful perusal, but the following passage is specially suggestive and for that reason is reproduced here without apology:

"In these days when the cry for university extension is popular, it may be well to consider whether the influence of libraries cannot be extended by arrangements which will increase their efficiency. Suppose it to be understood that at certain times an intelligent and well-read person, in the service of the library, is free from all other duties and is ready to give counsel about books to all who question him. Let it be a part of his business to study the wants of those who frequent that library. Let him have at his elbow the best catalogues, indexes, and criticisms. Let him be trained to such habits that he can readily find what he wants in a library, even when for the first time his attention is called to a subject. Let him be of a kindly disposition, patient with the uninformed, ready to catch the meaning of inquirers who have only imperfect modes of indicating their own wants; let his sympathies be broad, his intellect versatile, his knowledge comprehensive. Such a

man could do as much for the cultivation of the community as the editor of a newspaper, as the head of a school, as the pastor of a church—perhaps I might say as much as all three. Such persons are often found in public institutions. They ought to be recognized as necessary members of a library staff, the ushers of good books. They are the mediators between the writers and the readers. In these remarks I had chiefly in mind the popular library. In learned libraries, like those of colleges and universities, and in those so richly endowed that they are attractive to learned men, the principal librarian or superintendent should be a man of wide knowledge. If it is not necessary for him to know as many languages as Mezzofanti, he should at least command Greek and Latin, French and German. He should love science as well as literature. He should survey with an eagle's eye the vast fields of human activity, and discern with prophetic instinct what books will soon be wanted. He should watch for opportunities, as do merchants, to purchase that which rarely comes into the market. He should be skillful in arranging the treasures that he guards, so that they will be most helpful and suggestive to the investigator. The Librarian's office should rank with that of a Professor. He will be the better administrator if he cultivates his own special branch of study, for thus he will have a sympathetic relation with other investigators, and he will be the better investigator if he is also a teacher. Erudition should be the characteristic of his mind, beneficence of his heart. I wish it were the established custom to seek out such men and place them in charge of our libraries."

The meeting of the Council of School Superintendents of the State of New York, on October 14, 15, and 16, was one of unusual interest and importance. The Council is composed, with the State Superintendent, of the city and village Superintendents of the State. It is a body of representative educators whose conclusions, when properly formulated, ought to have great weight in molding public opinion and guiding legislation on school subjects. The chief subjects considered at the recent meeting were the exhibit of the New York schools at the Columbian Exposition, compulsory education, the professional training of teachers, a State educational commission, kindergarten schools, and high schools. There was practical

unanimity of opinion in the conclusions arrived at on all these subjects. With regard to the Columbian Exposition, it was decided that the exhibit should be divided into two parts, State and Municipal. The State Exhibit should include not only documents showing the work of the Department of Public Instruction, but also exhibits from the State Normal Schools, training classes for teachers, Indian schools, and the State institutions for the education of the blind and of deaf-mutes. The Municipal Exhibit should show all departments of city and village school systems. School work should be exhibited under the following conditions: each specimen should be labeled with the name and age of the pupil, and the date at which the work was accomplished; no work done prior to September, 1892, should be exhibited; work shown should be the work of an entire class; home work and special work done in school by individual pupils should be excluded; part of the work from every locality exhibiting should consist of the answers to questions written by pupils at graduation examination. It was urged "that requisite means be taken to prevent the unity and educational force of the display from being marred or lessened by association with private business exhibits of school furniture, books, or apparatus." The State Superintendent was requested to distribute the space assigned to New York among the various localities desiring to exhibit.

The council ordered that a bill be drafted, containing, among others, the following provisions with regard to compulsory education, and submitted to the next Legislature: children between the ages of seven and twelve must attend, for at least 150 days in each year, either a public or a private school in which the ordinary public school branches are taught in the English language, or they must receive equivalent instruction at home during the same period; children between the ages of twelve and fourteen must attend school at least 100 days each year, and if not employed at some suitable occupation, must attend 150 days; children between the ages of fourteen and sixteen must be under instruction, if they are not employed; it shall be a misdemeanor, punishable by fine or imprisonment, or both, for parents to fail to educate their children or for employers to employ children contrary to the provisions of the law; no child under fourteen years of age shall be employed

who has not reached a certain grade in a public school, or who cannot pass a prescribed examination, to be determined by the local public school authorities; the public school authorities of cities and villages must provide the machinery for the execution of the law, and may establish and maintain schools or homes for incorrigible truants, and make suitable regulations for the reception and care of incorrigibles sent from outside districts; and the State Superintendent shall be authorized to withhold from any city, or village, or school district that does not enforce the provisions of the law, its share in the State school moneys. Should a bill containing these provisions become a law, New York would have a compulsory education act very different from the verbose and ambiguous measure that now cumbers its statute book, and that is more honored in the breach than in the observance except in New York city, Brooklyn, and a few other places.

A State Educational Commission, to inquire into the working of every department of the school system, is something that has been repeatedly urged by Superintendent Draper in his reports to the Legislature. Last year the council took up the matter and appointed a committee to confer with other educational bodies in the State. The committee announced that the idea had been everywhere received with favor. The report that was finally adopted recommends the enactment by the Legislature of a law providing for the appointment of a salaried commission to inquire into the working of all parts of our public educational system; to suggest reforms, and to prepare the legislation necessary to carry their suggestions into effect. The commissioners, it was recommended, should be few in number, men of the highest type of character and standing in the community, and wholly unconnected with the machinery of public education. The opinion was almost unanimous that the conclusions of such men, arrived at after a thorough sifting of the evidence presented by educational experts, would have greater weight with the community at large and with the Legislature than would conclusions reached by a commission of educators, who would assuredly be regarded as prejudiced, each in favor of his own scheme or system. The Superintendents have taken a wise view of this subject. If there is to be an educational commission in New York State,

to let in the light on all the dark places of the school system, it must be composed of men whose names will be a guarantee of ability, integrity, and impartiality, and under no circumstances must it be allowed to degenerate into a machine, to whitewash the reputation either of a system or of an institution.

The opening session of the sixth annual meeting of the New England Association of Colleges and Preparatory Schools, at Cambridge, was devoted to what President Eliot called "the most important educational problem in America," namely, the shortening or enriching of the grammar-school curriculum, and the consequent shortening of the time required to fit for college. As presented by Mr. Frank A. Hill, of Cambridge, the subject involved the following propositions: the nine years of elementary instruction in the grammar schools ought not to be abridged; the secondary schools ought not to dip down into the lower grades like those abroad; the colleges of the country should connect with the high-school system all along the upper line, and so reduce the age of admission for many of the belated; the high-school course of four years will not bear reducing; pupils who begin at six and move along normally reach college early enough; an enrichment of the grammar-school curriculum is desirable; the chief aim in preparatory work should be to improve quality within existing time-limits rather than to attain the present level of quality in reduced time-limits.

In opening the discussion on this subject, President Eliot called attention to the fact that most of the boys were taken out of the grammar schools before completing the grammar-school course of study, and were fitted for college elsewhere, because the shortest route to college lies through the private schools. Only one-third of the men who enter Harvard are prepared in the public schools. There was a general concurrence of opinion that too much time is now given to arithmetic and geography (English grammar was not mentioned, but it might have been) in the grammar-school course, and that with proper omissions from these subjects, room would be found for elementary algebra and geometry, a foreign language, and elementary science. The long-continued monopoly enjoyed by arithmetic as the mathematical study of the

grammar school was justly attacked. The three subjects, arithmetic, algebra, and geometry, may be pursued simultaneously. It was well argued also that the best time to learn a language is during childhood, and that elementary science may profitably be pursued from the outset of the child's career in school.

The improvements suggested were two, with some difference of opinion concerning which of the two was the better, or rather which was the more practicable. As a matter of fact the two plans are not mutually exclusive. They are: (1) the "dipping down" of the secondary school, and beginning the preparatory course earlier in the pupil's career, as is now done with good results in the Boston Latin School and in the schools of Germany and France; (2) the enriching of the grammar-school course of study so that, whether the pupil goes to college or not, he advances regularly in his preparation for college. Superintendent Seaver, of Boston, expressed a preference for the "dipping-down" method because of the great practical difficulties in the way of the proposal to enrich the grammar-school course, and because of the relatively small number of pupils who would be benefited by the change. On the other hand, representatives of the private academies declared the "dipping-down" process impracticable for them, and it was further asserted that it could not be successfully accomplished in cities having a population of less than 50,000.

In reply to Superintendent Seaver, President Eliot admitted the "dipping-down" process to be at present the more practicable but not the more advantageous, since that plan is best which improves the whole grammar school instruction. He argued further, that the question really turns upon the wisdom or the unwisdom of a uniform course of study for all. Such a course of study is philosophically unsound. Formerly the colleges were so administered. The schools must abandon forced uniformity as the colleges have abandoned it.

All this is good so far as it goes. The next step must be a detailed statement of the omissions and changes suggested for the grammar school course of study. A tabular view—on the plan of the one used by Mr. Hill, showing the relation of the several grades of instruction in Germany, France, and the United States—to show what omissions are desirable, and just what should be substituted for them, would materially aid a practical solution of the question; or it might at least lead to

the definite experimentation which Mr. Tetlow suggested to President Eliot should be tried in a Cambridge grammar school.

Time was also given to a discussion of "Natural Science as a Requisite for Admission to College." Professor Clarke, of Williams College, opened the discussion with a paper urging the claims of natural science. It was interesting to note the readiness of the secondary schools to furnish preparation in science when the colleges ask for it. Out of one hundred schools sending students to Williams College, ninety replied "yes" to an inquiry asking if they could respond to scientific requirements in 1893; and among the Greek teachers in the secondary schools were many who spontaneously recommended preparation in science as an alternative with Greek. In the discussion that followed, the practical difficulties of the plan evidently influenced the attitude of many who took part. Dr. Gallagher, of Williston Seminary, presented quite a long list of practical difficulties, while acknowledging that his own school was fortunately so situated as not to be hampered by them. The discussion throughout showed a real desire to recognize requirements that mean actual work in science as distinguished from text-book science. The most interesting question was, however, as to what particular science should be required. It was denied, and also affirmed, that one science would answer as well as another. The truth seems to be that there are as yet not enough data upon which to base a final opinion as to preparatory work in science. One science, physics, was admitted to be excellent because it could be made to yield numerical results. In closing the discussion President Eliot pointed out that physics is the best science available, and that chemistry is also good. Of the other sciences, zoölogy and botany cannot be advantageously pursued at all seasons, and much of physiology is both unproved, and in the present state of the science, unprovable.

VII.

REVIEWS.

Life and Works of Horace Mann.—Boston: Lee & Shepard, 1891, 5 vols., pp. 587, 571, 466, 403, 573.

A generation has arisen that knows not Horace Mann. His name and, to a certain extent, his fame survive; but the precise grounds on which his reputation rests, and the definite ends that he sought to accomplish, are neither clearly nor generally understood. The common school never had a more enthusiastic and unselfish apostle than Horace Mann, and it is quite fitting that in the present era of educational activity attention should be called anew to his life and writings. In this handsome edition the publishers have made both accessible, and no educational library, public or private, can afford to be without it. That the editor should have abridged many of the reports and papers is unfortunate, but it is probable that only the few special students of the history of American education will be inconvenienced.

Mann was led to espouse the cause of the common school both by his philanthropic temperament and his personal experience. The vivid description of his own school-days reads almost like a passage from some oration of the present decade. "With all our senses glowing and receptive, how little were we taught," he exclaims in a letter to a friend, "or rather, how much obstruction was thrust in between us and Nature's teachings! Our eyes were never trained to distinguish forms and colors. Our ears were strangers to music. So far from being taught the art of drawing, which is a beautiful language by itself, I well remember that when the impulse to express in pictures what I could not express in words was so strong, that, as Cowper says, 'it tingled down to my fingers,' then my knuckles were rapped with the heavy rule of the teacher, or cut with his rod, so that an artificial tingling soon drove away the natural. Such youthful buoyancy as even severity could not repress was our only dancing-master. Of all our faculties, the memory for words was the only one specially appealed to." From his boyhood he longed for more education, not only for himself but for his fellow-men. His ruling passion was benev-

olence and its instrument knowledge. Through knowledge, education, all social reformation was to be accomplished. Poverty must be no barrier to educational opportunity. The state, through its system of common schools, must open to all the avenues to knowledge.

With these principles as his creed, Horace Mann labored long and earnestly for his fellow-men. As private citizen, as Secretary of the Massachusetts State Board of Education; as the successor of John Quincy Adams in Congress, and as President of Antioch College, he kept his lofty aim steadily in mind, and never ceased to strive for its accomplishment. Moreover, he understood what so many of his contemporaries and successors overlook, that in a democracy any real and lasting reform must rest upon an intelligent and instructed public opinion. Horace Mann, therefore, appealed to the parent as well as the teacher, to the citizen as well as to the legislator.

He had the faults of his generous, impetuous nature. His diffuseness is often very trying, and he lent a too ready ear to certain counsels and opinions that were pressed upon him. But citizen and teacher alike cannot rise from the reading of any one of these five volumes without feeling that popular education is a chief bulwark of civilization and of social order, and that to labor in its behalf is one of the noblest of life-works.

N. M. B.

The Present and Future of Harvard College: an Address delivered before the Phi Beta Kappa Society at Cambridge, Mass., June 25, 1891.—By WILLIAM WATSON GOODWIN, Eliot Professor of Greek Literature in Harvard University. Boston: Ginn & Co., 1891, pp. 42.

The Harvard Commencement season has been dignified by many Phi Beta Kappa orations that have become permanent contributions to American literature. Professor Goodwin, in choosing a homely theme and in appealing to a smaller audience than many of his illustrious predecessors, has not failed to sustain the traditions of his office. His address, which has happily been published for general circulation, is a broad and scholarly treatment of some of the most important movements in American higher education. It professes to discuss Harvard College only, but in reality it passes in review the development of the American university and the function of the col-

lege when both secondary school and university shall have reached a fuller and richer development. On both of these topics, Professor Goodwin speaks with wisdom and force, and his criticism is as instructive as his exposition is lucid. Read in connection with President Eliot's annual reports and Professor Palmer's papers on "The New Education," which appeared four years ago, Professor Goodwin's oration makes very clear indeed just what changes have taken place at Harvard and the steps by which they have been reached.

The especial significance of Professor Goodwin's argument lies in the fact that he, a ripe classical scholar and life-long teacher of Greek, pronounces in favor of those changes which have removed the study of Greek from the list of requirements for the baccalaureate degree. In so doing he separates himself from those short-sighted partisans whose exaggerated claims for Greek as a pedagogical panacea for the million have long since rendered their position untenable. Yet he does not abate in the least his enthusiasm for classical study, or his belief in it as a source of the highest culture. The effects of the elective system are traced and its results enumerated. It has dethroned the well-meaning dunce from his powerful position, and has greatly promoted real scholarship in every department. It has broken up the stupefying rigidity of the class system, which still holds so many colleges in bondage. It has won men for higher courses of instruction and research. Yet the elective system is not an unmitigated blessing. "I regret as much as anybody," says Professor Goodwin, "the gaps which the elective system often leaves, or allows careless students to leave, in their education. I do not like to see young men go out from college stamped with the highest marks of honor, who have never read a line of the Iliad, who do not know what a syllogism is, or the difference between a planet and a fixed star. But when I look at these defects of our system, and then turn to the wonderful advance in scholarship which we owe to this same system, and especially when I think how hopeless even our present scholarship seemed to us all twenty-five years ago, I cannot feel that we have made a mistake in securing this permanent gain, and in establishing our Graduate School as a custodian of our higher scholarship, even if we have temporarily sacrificed some of the lesser interests of learning." These sentences will be welcome to many a patient college teacher, who is laboring to free himself and

his college from the traditional bonds that hold them. They are as applicable to one institution as to another, for the American university with its great central faculty of philosophy, or arts and sciences, as it is sometimes called, will guard the higher and non-technical learning. The way is now open to the college to become, even more largely than it is at present, the great popular school of training and of culture, and the careful reading of Professor Goodwin's oration by those in authority, will hasten this development. It will dispel doubts, correct prejudices, and lead to a clearer and wiser view of some of the problems now before the American University.

N. M. B.

Apperception; or, the Essential Mental Operation in the Act of Learning. An Essay on "A Pot of Green Feathers."—By T. G. ROOPER, Esq., M. A., H. M. I. Syracuse, N. Y.: C. W. Bardeen, 1891, pp. 52.

It is not difficult to imagine anyone, whatever his stage of advancement, rising from the second or third reading of this thoroughly engaging little book with the conviction that the more of such pedagogy we can have the better, and with the hope that our pedagogic literature may no longer be so barren of such helpful monographs. For it is certainly as true that this little volume does stand almost alone in its plan, its style, and the peculiar place that it is fitted to fill, as that these things ought not so to be. Without any of the objections that may be urged against Radestock's "Habit in Education," and treating a theme that is no less fundamental and even more important, it may be that this book is destined to fill a far larger place with the teachers of the country than the former work has yet found. Different as these two little books are in almost every respect, there is yet a sort of nut-shell quality peculiar to them both that warrants their being mentioned in the same connection, and perhaps made use of for the same purpose.

There is no attempt at exhaustive treatment, and in this fact, together with the delightfully concrete style, and the keen instinct that the author has for the heart of the subject, lies the strength of the book. Who wants such a book to be complete? Not the beginner, for it blurs his insight into essentials; and certainly not the advanced student, for he can develop for himself. Incomplete as it is, we have here the

gist of a theme which is at the very heart of pedagogy, written in clear language, and adapted to the comprehension of anyone. There is not a definition in the book: and yet it is peculiarly rich in the variety and frequency of its use of terms. These terms are used generally in a sense broader than discriminating usage admits. Impression, for instance, is made a sort of psychological factotum. And yet nothing more pedagogical than all this could be imagined, and no better instance of the application of the very principles that the author would inculcate could well be found than his own skillful exposition. It is safe to say that this essay is *par excellence* a book for beginners in pedagogical psychology, and that a more sure, pleasant, and practicable way, especially for those who are pursuing the subject without a teacher, could not well be devised. He would certainly be plunged *in medias res* without having to run the gauntlet of definitions that, very properly, to be sure, blocks the entrance of a formal and systematic treatise. The trees are there, but it is the woods and not the museum.

Perhaps the only points in the book that are susceptible of misinterpretation are the unqualified statement of the dictum "things before words"; and the affirmation that "every time a child learns to say that the tiger is an animal, he not only learns something about the tiger, but also extends his conception of what an animal is." This may do in logic, where we deal with the *ought*, but not in psychology, where we must deal with the *is*, of mind. Juxtaposition does not always involve judgment. The ability to say a thing one way does not involve the power to say or to know it the other way. One cherishes vivid recollections of a case where "six eights are forty-eight" added to the concept of the sixes, but not to the concept of the eights or the concept of the forty-eights.

There is space only to say further that one who completes the reading of the *Pot of Green Feathers* is likely to do so with the feeling that somehow he owes a debt not only to Mr. Rooper who wrote it, but also to Robert Hebert Quick for discovering it; to Dr. Harris for telling us about it, and to Mr. Bardeen for publishing it; a debt which he can best discharge by urging all his friends to read, mark, and—apperceive it.

WALTER L. HERVEY.

NEW YORK COLLEGE FOR THE TRAINING OF TEACHERS.

Studies in Constitutional Law: France—England—United States.—By ÉMILE BOUTMY. Translated from the French by E. M. DICEY, with an Introduction by A. V. DICEY, D. C. L. New York: Macmillan & Co., 1891, pp. xiv, 183.

This stimulating and suggestive book, with its lively style, its strong individuality of method and of view, its surprising accuracy of information and certainty of insight, has been known and prized by specialists ever since its first publication in 1885: this translation of it makes it accessible to English readers, and ought to be the means of giving it the wide popularity it deserves. The first of the three essays it contains sketches briefly and rapidly, but with a very sure touch, with sufficient historical explanation, and with many acute comments, the various and diverse sources of English constitutional law and practice; the second analyzes, at considerably greater length, our own constitutional structure, its state and its federal, its documentary and its customary parts; the third rounds out the other two in a most interesting and suggestive way by discussing the spirit and historical genesis of English and American institutions in comparison with the spirit and history of French political developments.

There is a singular *naïveté* in the self-confidence with which M. Boutmy smiles, now at the ignorance, and again at the mental characteristics of his own countrymen, and acts as schoolmaster to other French students of constitutional law in the study of English and American political arrangements. But there is no touch of arrogance in the urbane and placid way in which it is all done, and M. Boutmy furnishes on almost every page abundant justification of the assumption that he knows what he is talking about.

Evidences are not wanting that he is himself a Frenchman, who sometimes finds it just a little difficult to occupy the English or American point of view. It makes one stare to read in a preface written in 1888 that "the question of secession is not yet closed" in the United States, and that there is still a chance that we may have several federal republics upon this continent instead of one. It seems odd to us to find Georgia put along with Massachusetts, Connecticut, and Pennsylvania in a generalization as to density of population and rate of immigration when speaking of a period preceding the war (p. 132); we can hardly agree that our constitutional Declarations of Right were in the nature of commercial ad-

vertisements, meant to attract immigrants (pp. 129, 130); we wonder when we read (p. 10) that there was a time, not a hundred years ago, when the practical independence of Ireland might have been quickly accomplished; it is evidently out of keeping with the author's general (perfectly true) view of English constitutional development, that it has been a history of practical expedients and not a history of the carrying out of systematic plans, to say (p. 48) that the English "did not *intend* their Constitution to be a compact whole," and that constitutional items of law, "instead of being marked out and easily distinguished, are *purposely* mixed up with ordinary laws, and allowed to fall out of view." Many individual judgments contained in the volume may well be doubted.

But these are only incidents, perhaps we might say only accidents, in the general progress of an exposition almost uniformly admirable, and at some points,—notably in the third essay,—rising to quite unusual heights of excellence and suggestiveness. Under M. Boutmy's handling familiar institutions assume a new significance, are clothed with a new life. Those who do not read this little volume will have missed a principal source of information and inspiration.

The style of the translator is excellent. It is not exactly M. Boutmy's style; a rather surprising license of free translation is observable throughout. But the spirit of the original is very well preserved, and at almost every point its true significance.

WOODROW WILSON.

PRINCETON UNIVERSITY.

Principles of Political Economy.—By ARTHUR LATHAM PERRY, LL. D., Orrin Sage Professor of History and Political Economy in Williams College. New York: Charles Scribner's Sons, 1891. pp. xii, 599.

Professor Perry's resignation of his academic chair, after thirty-seven years of faithful and distinguished service, lends a melancholy interest to one of the reasons that led him to write this treatise. This was a desire to provide for himself a fresh text-book to teach from. His friends and pupils will feel that he could hardly have closed his pedagogic labors more worthily than with such an example of devotion to the teacher's task.

Two other reasons assigned for undertaking the volume are

contradictory, and one of them points to its most serious fault both as a scientific work and as a text-book. Wishing to leave behind him one book devoted exclusively to the principles of economic science, and using history only incidentally for purposes of illustration, Professor Perry has also felt it a debt due to his countrymen to use once more the best and ripest results of his life-long studies "in the most cogent and persuasive way possible, within strictly scientific limits, to help them see and act for themselves in the way of escape from false counsels and impoverishing statutes" in the matter of cheap money and artificial restrictions on trade. Both of these are praiseworthy purposes, and anything from Professor Perry's pen in fulfillment of either would meet with respectful attention. But he has undertaken the impossible task of combining them in one work. The result is a book not devoted exclusively to a calm exposition of principles, but a highly polemical mixture of principles and their practical applications. With all deference to Professor Perry's high authority, and with the greatest admiration for his abilities and achievements, the younger generation of economic teachers believe that if political economy is to be recognized as a science worthy of the intellectual devotion of men who possess the true scientific temper, its principles must be carefully distinguished, in academic instruction, from the controversial discussion of debated questions of legislative policy.

That the controversial habit of mind unfits an author, in some degree, for a purely scientific treatment of his theme, is seen in parts of Professor Perry's book that should be purely expository. It leads him to be too easily satisfied with his own thinking when he might with advantage institute a painstaking comparison with the analyses and conclusions of other scholars. The system of economic theory as it exists in the minds of leading economists to-day is a very different thing from the political economy of the text-books twenty-five years ago. A great deal of keen thought has been devoted to fundamental problems, and presently we shall have a text-book in which the results, sifted and corrected, will be brought together in a new synthesis. Professor Perry has not so much as attempted such work. Comparing his new book with his older ones we see the growth of his own economic thought—the development of an individual system, not the growth of the body of economic doctrine. From the point of view of a

personal contribution to the science this may be well enough; but is it the right point of view for a text-book?

It is pleasanter to turn to the merits of this volume, which are many. The gift of clear statement which was so conspicuous in Professor Perry's earliest work, and contributed probably more than any other one thing to secure for it the large sale of twenty-one editions, has not deserted him. His thought is never vague. His analyses and definitions are clean cut, and bear that distinct impress of an original mind which never fails to fix the attention of students. This vigorous style is enriched by concrete facts drawn from the actual world of business. It is safe to say that in no other text-book of political economy will the student find so much historical, geographical, statistical, and legal material, pertaining to industry and commerce, or so many of the technical terms used in trade and banking, with their definitions.

The arrangement is new, and is a much more severely simple grouping of economic categories than appeared in either the *Political Economy*, or the smaller *Introduction*, though it is but the logical outcome of views set forth in both. The first chapter is devoted to Value. Then, in order, come three chapters devoted to three kinds of "valuables," namely, material commodities, personal services, and commercial credits. Money is next treated as the only valuable that may belong to more than one of three categories; it may be either a commodity or a credit. The sixth chapter is on foreign trade, a subject given separate treatment because of the venerable and deep-rooted error that sales against money differ from sales against other merchandise, and the seventh and last chapter is on taxation. The scientific validity of this arrangement depends wholly on the correctness of Professor Perry's fundamental theoretical positions, which it is not proposed to discuss here.

The present tendency of economic thought is toward conceiving the subject matter of the science in psychological rather than in physical terms. Professor Perry has done yeoman service in preparing the public mind for this change of view by his strong insistence that political economy is not a science of material wealth. As a matter of fact he has never been true to his further assertion that it is a science of persons. He has never consistently developed economics as a science of personal desires, activities, relations, satisfactions,

etc., as the followers of Jevons and Menger are doing to-day; but, assuming that a science of the satisfaction of wants by means of buying and selling is (in briefer terms) a science of "sales," and, therefore, a science of "valuables," he has made the latter definition the basis of his classifications. But while he has thus made economics, in all points of form and nomenclature, strictly a science of things, the things ("valuables"), are a genus composed of both physical and psychical elements, and it is the latter that Professor Perry always emphasizes. His work, therefore, serves well to help along the transition from the older to the newer science.

FRANKLIN H. GIDDINGS.

BRYN MAWR COLLEGE.

A Shorter History of the United States for Schools, with an introductory history of the discovery and English colonization of North America, with maps, plans, and references to supplementary reading.—By ALEXANDER JOHNSTON, Professor in Princeton College. New York: Henry Holt & Co., 1890, pp. xvi, 340.

The announcement of another text-book by Alexander Johnston—unhappily posthumous—arouses the expectation of all who had the happiness to know that genial and scholarly man, and of all those thousands who first learned the interest of American history from his works. It is not too much to say that his industry, his enthusiasm, and his power of statement made him one of the first authorities in the history of the Constitutional period.

In appearance and make-up the new work is an improvement on his previous "School History"; and it is in these respects not surpassed by any school text-book. In the first place, the publishers have had the courage to present a book without pictures, and thus to find space for better things. The somewhat fatiguing alternation of large and small type has also wisely been given up. Instead of the sets of questions interjected into the text—a refuge for the poor teacher—we have neat little bibliographies, giving specific references to parallel passages in other common and accessible books. Thus the pupil has always before his eyes a suggestion that there are interesting things "not in the book." The useful system of little maps scattered through the text is also retained and improved by careful drawing and ingenious devices for show-

ing movements of troops. In outward appearance, in typography, in convenience to teacher, pupil, and reader, the book is a model.

Turning from externals, we notice that the proportions are unusually good. Professor Johnston has accomplished his long-expressed desire to write a new book in which the colonies should have less space. The military history is also somewhat shrunken, although it might bear a little more compression. Above all, the book has the great merit of including sketches of the social and economic changes which have so powerfully affected the development of the nation. The pupil must see that history is more than battles, acts of Congress, and Presidential elections. The style is strong, clear, and addressed to people of ordinary common sense.

With so many admirable features, it is a great pity that the publishers have allowed the book to appear with serious defects of detail. Had Professor Johnston lived, and had the strength, he would have subjected the proofs to the final searching revision which is the only assurance of accuracy. We cannot believe that he would have left the colored maps in their present inaccurate and misleading state. The maps copied from those in the "School History" retain errors which he would have been glad to correct; the new maps interpolate the most astounding blunders. Again, in the process of condensing the thought, the necessary provisions and qualifications are often left out, and a statement remains which is no longer accurate. (See pp. 443, 476.) The book also abounds in slips, like the substitution of "south" for "north" on p. 439. Beyond those minor errors, there are everywhere evidences of the weariness which forbade the author the verification of details. Thus on p. 183 we are told that the number of slave-holders (apparently in 1850) was 200,000; a reference to the census would have shown that it was nearly 350,000.

Such errors abound, and the great and deserved reputation of Professor Johnston calls for the correction which it would have been his pleasure to bestow before the book can be made what it ought to be, and may be—the best of all text-books on American history.

ALBERT BUSHNELL HART.

HARVARD UNIVERSITY.

The Colonies, 1492–1750.—By REUBEN GOLD THWAITES. New York and London: Longmans, Green & Co., 1891, pp. xviii, 301.

This is the first of the volumes on "Epochs of American History," edited by Dr. Albert Bushnell Hart of Harvard. When complete, the three books will form a new history of the United States, lying midway between school text-books on the one side and the elaborate histories, such as that of Bancroft, on the other. The design is, as the editor informs us, to "show the main causes for the foundation of the colonies, for the formation of the Union, and for the triumph of that Union over disintegrating tendencies."

Mr. Thwaites, in preparing the first volume of the series, proposes to show what institutions Englishmen brought with them from home, and how those institutions were changed to suit the new environment. The physical geography of the country, the distribution and habits of the aboriginal inhabitants, and the social and economic condition of the people in each section, as well as the more striking events in their history, are described, all with the view of showing their influence on the development of the American people and their institutions out of English beginnings.

Perhaps, however, the greatest merit of the book is in showing that the Revolution was "the culmination of a century of dissatisfaction in America with the home government in England." A careful perusal of Mr. Thwaites's volume would be an admirable discipline for those examiners who are so fond of putting the question: "Mention three causes of the American Revolution."

It may be truly said for this book that it is a mine of accurate historical information, that the author's view of historical perspective is good, that his language is never ambiguous; and that the bibliography at the beginning of the book and at the head of each chapter will be invaluable to the student of American history. It is, however, overloaded with dates and is lacking in the picturesque. W. H. M.

The Great English Writers from Chaucer to George Eliot.—By TRUMAN J. BACKUS, LL. D., and HELEN DAWES BROWN, A. M. New York and Chicago: Sheldon & Co., 1891, pp. x, 410.

Sixteen years ago Dr. Backus published a revised edition of Shaw's "Manual of English Literature." This book has been

probably more extensively used than any other text-book on the subject in this country. But methods of teaching English literature have undergone a vast change for the better in the interval. Dr. Backus did much to improve Shaw's Manual by simplifying its somewhat verbose and stilted criticisms; but still it remained the medium of a method of teaching that was radically defective. Twenty years ago the student was obliged to memorize the names and dates of authors, with criticisms on their works—works that he had never read. The present volume marks the change in method. It is not a revision of the older work. It is an entirely new book, made on a radically different plan. The older book is loaded down with criticisms of all the authors that ever attained a niche, however small, in the temple of fame. The newer book omits the lesser lights and treats only of the great writers, from Chaucer to George Eliot. The former is very meager, the latter very rich, in its illustrative selections. The one gives us heavy, labored disquisitions somewhat after the manner of Johnson's *Lives of the Poets;* the other presents only such facts about an author and his works as are necessary to prepare the way, or to whet the appetite, for a perusal of the works themselves. In other words, Dr. Backus and his colleague, in the preparation of this work, recognize the truth that the only way to study literature is not to read about literature but to read it; and that an introductory book should be but as a guide-post pointing out the paths that lead to the Delectable Mountains.

To the writer it has been a pleasure to read this book. Like everything that comes from Dr. Backus's pen, the style is lucid and graceful. The student will be indeed "a dull lump of un-Promethean clay," who can peruse its pages without being incited to know something more of Shakespeare and Scott and Burns and Thackeray than may be gleaned from these pages.

I presume that lack of space forbade the introduction of some names that must certainly be enrolled among the "great English writers." Nothing else would justify the omission of Carlyle and Ruskin, Tennyson and Browning.

It is to be hoped that the authors of this volume will give us another at an early date on the great American writers —a book that is much needed for school purposes at the present time.

W. H. M.

Advanced Lessons in English Grammar for Use in Higher Grammar Classes.—By W. H. MAXWELL, M. A., Ph. D., Superintendent of Public Instruction, Brooklyn, N. Y. New York: American Book Company, 1891, pp. 334.

This work is a happy completion of the series of admirable text-books by the same author, built upon the fundamental idea of teaching that which is desirable and necessary for pupils to know, without overloading their minds with incomprehensible rules, which they can only learn by rote and nothing more. The author evidently looks upon grammar as a means of training the mind to appreciate the correct uses and relations of words in the expression of thought, and not merely as a means of furthering correct speech, which seems, unfortunately, to be the sole aim of the majority of the writers of text-books on the subject.

Grammars have appeared almost without number, grammars of all styles, good, bad, and indifferent, many of them written for no other purpose than to air the whims of their authors or to gain notoriety. Several very admirable books have appeared, but have proved of no service for the classroom, as they were written from the standpoint of the scholar rather than of the learner; and as the result we hear it said on all sides that "English Grammar is taught worse and understood less than any other subject in the entire school course." A careful examination of this work, instead of producing the usual result, disappointment, has left the impression that a successful text-book has been produced. It is simple in method, the definitions are concise and clear, the arrangement of topics is admirable, the exercises are full and carefully selected and arranged. It develops very accurately and systematically, and is distinguished for its brevity, clearness, and uniformity. It embraces a complete and yet simple system of analysis, with lucid explanations of the points which present special difficulty. It is simple enough for the young and sufficiently comprehensive for the more advanced. It is developed in accordance with pedagogical principles and manifests on every page the scholar and practical teacher.

The author has evidently kept in view the three uses of grammar—"as an intellectual discipline, as a key to unlock the meaning of obscure sentences, and as an art that furnishes the rules for correct expression"—while writing the book, and has successfully reached the end desired from the beginning. The book embraces all the theory, and practice upon that

theory, that are necessary throughout a high-school course, and is at the same time a text-book containing the principles and rules, as well as their application, and a work of reference suitable for use "wherever difficulties are presented either in the student's own composition, or in literature that is subjected to critical study."

A brief *résumé* of the parts of speech and the theory of the construction of the sentence is given in the first fifty-eight pages. This is followed by chapters on the divisions of grammar, Orthography, Etymology, Syntax, Prosody, and each of these departments is treated separately and fully. The system of word-analysis is sufficient to give the learner a good understanding of the vocabulary of our mother tongue, and is at the same time useful for reference and an admirable model for further work in etymological studies. The chapter on Economy of Attention contains many things that pertain to the better understanding of the use and abuse of language, and which are commonly treated only in works on rhetoric.

While this book has little occasion to touch the disputed points of grammar, it nevertheless adds something to the discussion of them, introduces some good ideas of the author, and shows a mastery of the language in its early historical development and a thorough acquaintance with modern linguistic science. Whether it be possible for anyone to write a book on grammar that will please all sorts and conditions of teachers remains to be seen. In my opinion it cannot be done; at any rate not until some "Academy" is recognized by teachers as the court of last resort, and until the books conform to its *dicta*. This work, however, will commend itself to such teachers as follow rational methods, for the author has shown himself pedagogically as well as scientifically competent for his task.

HENRY CLARK JOHNSON.

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Inorganic Chemistry, Theoretical and Practical. A Manual for Students in Advanced Classes.—By WILLIAM JAGO, F. C. T., F. I. C. London and New York: Longmans, Green & Co, 1890, pp. xii, 458.

A text-book of elementary chemistry is not so rare a thing that the advent of a new one can be looked upon with unmixed satisfaction, unless its methods are so invaluable, or at least

original, as to place it in the estimation of teachers *above* those which already exist. The present volume, however, is not only not original in its methods, but it seems to fall below the level of other books of similar scope that already exist. The science of chemistry is too vast and too much dependent upon accuracy of detail to be included between the boards of one small volume; and it is only by reference to cyclopedic works, and to original essays in the journals, that the student can obtain a grasp upon any portion of the science. A text-book, therefore, ought to aim at nothing but setting forth the outlines in logical sequence and guiding the beginner toward a knowledge of the salient features which distinguish the substances with which he is to deal. A manual, on the other hand, should be a sort of broker between the questions which may occur to the student and the answers which larger works can furnish. What is to be said on any one subject should be collected in one place, and not distributed in little bits here and there; the method of description and of arrangement should be strictly uniform, and the relative importance of facts should become distinctly apparent from the space accorded them in comparison with the more hasty mention of accessories. All of this is wanting in the present work. The subject-matter is so distributed, that a trained chemist is at a loss to find a subject without reference to the index. Thus, we must look for the law of multiple proportions on pages 21 *and* 99; crystallography and the kinetic theory of gases are disposed of under the heading "oxides of hydrogen," coming between water and hydrogen peroxide; the periodic law, spectrum analysis, and the laws governing chemical action, form the bulk of a chapter entitled "metals." But, lest one might suppose that the logical order has been abandoned for didactic reasons, there are numerous instances where phenomena are introduced that cannot be intelligible to the student at that stage. Description of the properties of hydrogen serves as an excuse for a paragraph on the behavior of pure and amalgamated zinc toward acids. The insolubility of gold in acids is spoken of under nitric acid, 220 pages before the title Gold. Terms are frequently employed, as if well known, whose definition is given later on. By contrast, the same term is sometimes defined in a number of places. In the attention and space accorded different subjects, there appears to be very little system, and much that is important is slurred over, in favor of

minor matters. Finally there is not a single reference to larger works, except in the most general terms.

As to the subject-matter itself, the descriptive part seems to be quite well compiled; the numerical values and equations are correct and the information as to technical uses and manufacture full and fairly accurate. But there are many sins of omission: among the occurrences of carbon, anthracite coal finds no mention; the silicates and the manufacture of porcelain and glass receive very inadequate treatment; absolutely no attention is paid to the characteristic reactions of the various substances, or to a systematic comparison of elements belonging to the same group.

On the other hand, much is introduced which cannot interest or instruct the beginner: the laws of thermodynamics and of crystallography cannot be disposed of in a couple of pages, and mean something to a student who has learned only of hydrogen and oxygen. Besides, these subjects are treated with an evident lack of familiarity. Having defined the Regular System, in crystallography, as that in which the axes are cut by the planes at equal distances, the author is compelled to ignore all the forms except the octahedron, cube, and dodecahedron. A more atrocious blunder occurs on page 101, where the "molecular momentum" is called $m\ v^2$ instead of $m\ v$. There being n molecules, the total molecular momentum becomes $n\ m\ v^2$. He then makes the wrong assumption that the pressure upon the walls containing a gas is equivalent to the total molecular momentum. As he is trying to reach the expression $p = \frac{1}{3}\ n\ m\ v^2$, he now says, "as the pressure is exerted in all directions, that exerted on one plane only is $\frac{1}{3}\ n\ m\ v^2$. The author has discovered a solid bounded by three planes!

Enough—or perhaps too much—has been said, to show how unfit the book is to be placed in the hands of a beginner. It bears every evidence of hasty compilation, including the grave one of obscure language and gross grammatical blunders. The most agreeable part of the book is the mechanical execution and the judicious selection of the illustrations—with the single exception of that on page 293, which is manifestly absurd.

MORRIS LOEB.

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Duty: A Book for Schools.—By JULIUS H. SEELYE, D. D., LL. D., Late President of Amherst College. Boston: Ginn & Co., 1891, pp. 71.

This book, upon a theme in which it is easy to be either stupid or wishy-washy, is interesting and strong. It is a book for children. Its size is small—seventy-one pages of two hundred and fifty words each. Yet so compact is it that it covers the principal departments of moral action. The divisions of the subject are simple and natural, though why under "Duties to Mankind" "Duties in the Family" should be made so distinct from "Duties to Others" it is difficult to understand. The illustrations of principles are few, those few are choice and new. Less is the need of illustrations since vigor of treatment and clearness of style unite to stimulate teacher and student to seek illustrations for themselves. The book is theistic in tone; yet it is nobly remote from either Protestant or Catholic conceptions in religion. It is equally fitted for the parochial school and the public. It is sufficiently religious for the one; and none too religious for the other.

CHARLES F. THWING.

ADELBERT COLLEGE.

The American Citizen.—By CHARLES F. DOLE. Boston: D. C. Heath & Co., 1891, pp. xvi, 320.

This book is intended to present in a simple and concise form the theory of good government, beginning with that of the home and the school, and gradually leading up to the general plan of our National and State governments. A most commendable feature is the emphasis laid upon the moral side of the practical questions in which good government is involved. The work is adapted both for a text-book and a reading-book, and is written in a pleasant and interesting style suited to the comprehension of young pupils. The author has not forgotten that most pupils leave school at an early age, and that, unless they receive the elementary training for useful citizenship while in school, they will not develop that interest in the affairs of government which every American ought to possess.

The subject is discussed under five heads: beginnings of citizenship, the citizen and the government, economic duties, social rights and duties, and international duties. The whole concludes with an excellent list of fifty books for reference, bearing directly upon the subjects treated.

In the treatment of political, social, and economic questions the author has aimed at a fair presentation, and as a rule he has discussed them from the standpoint of patriotism rather than partisanship.

The book would have been improved had there been inserted at the end of each part a series of suggestive questions, that would induce the pupils to think clearly upon the topics discussed. In the hands of a patriotic and enthusiastic teacher this book will do much toward preparing boys and girls for a higher citizenship than is possible to-day.

E. H. C.

VIII.

EDUCATION IN FOREIGN PERIODICALS.

The Socratic Method.

R. M. WENLEY, D. Sc., IN THE LONDON "JOURNAL OF EDUCATION."

"Socrates appeared at a turning-point in Greek thought, when philosophy, while discrediting the bare existence of truth, had failed to furnish any homogeneous account of the world or of human life. His mission was, thus, to probe the commonly accepted dogmas of speculation, and to show how far skepticism was capable of justification or to what extent it was unwarrantable. He made the method of the Sophists his method, and in this way turned it to new uses. He adopted the dialogue, because it was the means of instruction best suited to his purpose, and because, in the contemporary social state of Greece, it was the most generally understood, and therefore the most likely to be successful. His attempt was, putting the matter in a nutshell, to induce others to use their own rational faculties.

"What, then, is the Socratic method precisely? It is often described as the method of imparting knowledge by means of questioning, or by a skillfully contrived series of interrogations. While this definition contains nothing wrong and in no way misrepresents the fact, it is far from adequate. Questioning may have reference to many things, and it is exactly in the *kind* of interrogation that Socrates differs from any other thinker. As distinguished from questioning of the common order, Socratic investigation does not attempt to elicit definite answers relating to matters already studied. It is rather an effort to render the mind as active as it naturally can be. The desire is to draw out the knowledge possessed by the individual apart altogether from special preparation. It refers, that is, to general notions. And for this purpose each answer may be said to beget a fresh question, till at length, cleared by the process, the so-called pupil arrives at a more competent apprehension of the conceptions which his mind has in its own right, so to speak. The Socratic method may therefore be termed an oblique means of arriving at self-knowledge and at an

evaluation of those mental counters, as it were, which, because in common use by all men, cannot but have a certain current worth fixed by tacit, if not by explicit, consent. Socrates conceived it to be his business to bring about a distinct understanding with respect to this tacit consent.

. . . . . .

"Has this method, we inquire, any practical bearing upon our daily work? Can it be employed by us in imparting the ordinary facts incident to the scholar's education? And if these questions are to be answered in the negative, is there anything left for us of this once famous method? Broadly speaking, I do not think that the *genuine* Socratic method is in any way eminently suited to convey scholastic instruction in the strict sense. The theory that all knowledge is within and only awaits suitable assistance to be drawn forth, has unquestionably certain very apparent applications in the sphere of ethics; but, then, ethical instruction, in the ordinary meaning, presupposes a definite maturity and a character at least partially formed. The materials, to put it plainly, are here mainly lying fallow in the individual; they require to be clearly pointed out, to be reconstructed, and perhaps to be explained, ere they can affect the as yet unconscious person with transforming effect. In the region of what may be termed positive instruction such processes are, however, almost altogether inapplicable. Historical incidents, customary orthography, scientific conclusions, and the like, cannot be constructed by means of question and answer—*i. e.*, by means of deliberation on ideas common to the interlocutors. For, ere the method can be applied, a certain prior attainment is presupposed. The facts of science have to be assimilated from the outside, as one may say. Even in the case of adults who possess no knowledge of a specific circumstance, the dialectic method cannot be employed. They may be 'quick at the uptake,' as we put it; they may be able to show aptitude; yet for the nonce they cannot but be treated as if they were children. To take an example: I, for instance, am wholly ignorant at the present moment of the exact meaning of the term 'volt,' in common use by electricians. I am aware that it has some reference to the energy of an electric current; but how this energy is estimated, or what primarily the term covers, I do not know. Nor would any amount of questioning elicit the knowledge from me. I must go to something outside of

myself, must assimilate this, and only then would the method become applicable. It might be employed by someone more skilled in order to give greater definition to the idea which I had framed. But, until some such idea had been procured, questioning would be of no service.

"Now, the knowledge which it is our daily business to impart to children, both small and large, stands very much at this level. Something has to be put into them; not much can be pumped out of them apart from prior study. The method of question and answer, as applied to elicit information learned from books, is not the true Socratic method, although, as we shall see in the sequel, the Socratic method may, to suit present exigencies, be enlarged so as to include this. But we have to bear in mind that the true Socratic method has reference to common notions naturally formed by the intellect, and not to special information painfully acquired from ascertainable sources. In the main dialectic has application to those diffused ideas in which all men are more or less ready to agree with one another—to the ideas, *e. g.*, in virtue of the possession of which man is a social animal. Or, bringing the contrast to a point, the questioning with which we are most familiar has a necessary objective reference; it has to do with what is, for a time at all events, unfamiliar to the pupil; and nearly everything may be said to be unfamiliar to the youthful mind. The true Socratic method, on the contrary, has a subjective reference; *i. e.*, it has chiefly to deal with those conceptions which we of more mature years usually form simply because we are human beings. Here reflection, or self-criticism, canvassing of the ideas of others, and, above all, deliberation along with others, is of high value, because it tends to give greater definition to those fundamental conceptions which render it possible for us to recognize that we lean upon our fellow-men at every turn. For some such reason, accordingly, I am inclined to think that the Socratic method, in any strict sense of the phrase, cannot be readily employed in imparting new information to children. It presupposes the very thing which this instruction is intended to convey. It implies, to be precise, the possession of ideas already more or less clear, and an understanding of the suitable linguistic medium for the expression of such ideas. To employ familiar terms, it presupposes experience in the general sense of the term, and acquaintance with some of the departments of knowledge. Educational authorities, like Pestalozzi and

Girard, who advocate the use of what they loosely call the Socratic method in the instruction of children, invariably draw attention to the strict limits within which its application is possible; and these limits are entirely due to the new signification with which they are pleased to endow the method. Interrogation of the kind which we have been contemplating may very well lead to certain fresh conclusions in cases where attainments natural to the mind may be presupposed—as, *e. g.*, in the simpler discussions concerning time and space; or where the materials necessary to knowledge do not lie far afield, as, *e. g.*, in the less complex moral judgments. It is of very little value beyond this province, because, instead of imparting, or rather eliciting, knowledge, it becomes an instrument, shall we say of torture, in that it is devoted to an attempted extraction of the non-existent.

"This being so, are we to come to the conclusion that the *maieutic* art—the art of bringing ideas to birth, is without application in our daily work? Probably we should arrive at such a decision with much reluctance. In the personality of Socrates there is so much that attracts that it seems a species of sacrilege, especially to a teacher, to cut one's self adrift from it. Nor, on further reflection, does there seem to be any imperative necessity for this. Certain obvious applications of his method still remain possible, although the present circumstances and aims of education are as far removed as the poles from those incident to Greek life. We must therefore be prepared, as I have already hinted, to put a liberal interpretation upon the phrase. And so long as we remember that we are doing so, no fault can be found.

"First, then, if interrogation be regarded in what may be called its pseudo-Socratic aspect, it certainly is not without its lessons. Suppose that the scholar have acquired the sufficient minimum, in geography, or history, or the like, how, precisely, may skillful questioning on this basis be turned into an instrument for further learning? If the interrogation be thoroughly systematic it may advance the pupil somewhat thus. The information which he has, the scholar picks up in his own fashion and retains in his own way; fashion and way are, as we know, alike apt to be peculiar. The real teacher, by well-considered questioning, can partially transform this knowledge. He can bring his pupil to apprehend that there is knowledge *and* knowledge; that materials put together in one manner

convey a far more vivid notion when related according to a different method. The idea which the mind forms is not a dead thing, but a living organism. If it is actually to live in the mind of its possessor, the parts must be set in their true relations to one another. What these relations are, the pupil, as often as not, cannot perceive in the course of mere acquisition. But when he has so far mastered the materials as to be able to employ them, a skillful teacher can enable him to frame a fresh notion, in which each part is properly subordinated to the resultant whole. Thus the process of interrogation becomes, to all intents and purposes, a species of deliberation. Teacher and taught lay their heads together. The former, like Socrates, knows what he wants; the scholar, like Socrates' friends, is capable of being led; and, as a consequence, the one so directs the other that knowledge, which is at once sufficiently based and accurately constructed, results. This, as every teacher perceives, implies, on the face of it, no common ability in the instructor. For it presupposes that he has in his mind's eye the most vividly realized concept of all he desires to impart. So vivid must this concept be that the teacher cannot but in some sense feel himself one with it; and, being able to recognize it as a part of himself, he can throw his whole personality into the task of transferring it to others. Absolute mastery over the idea to be imparted is the indispensable preliminary to success in what is rightly called the *master's* art. Listlessness or half-knowledge is, from the Socratic view-point, utterly fatal. While, then, this interrogation, which is being constantly applied to children, is non-Socratic, in that it implies prior study on the pupil's part, it is thoroughly Socratic in its reference to the teacher's attainments and equipment, but most characteristically in the kind of the aim which it embodies. We, one and all, want this distinct mental perception of what we desire to teach. We want it, because we see in Socrates himself what a potent instrument it is; and we share in his spirit when we attempt, by means of question and answer, to set the knowledge which our pupils have in fresh lights, and so to render it more adequate to the facts, to endow it with the living mental reality on which what we are accustomed to call "interest" entirely depends. The acme of teaching on this method is to be able so to arouse the pupil that the master's way of regarding the subject on hand becomes his ideal. How hard a saying this is,

we are all aware. But, if there be a determination to face even the greatest difficulties in the Socratic spirit, none need despair of reaching at least some measure of Socrates' success. And in my humble opinion, to be able to impress one's self upon the young so as to give new direction to their thought, even in what may appear to be such prosaic subjects as grammar, geography, or history, is to possess a mission. For no teacher should ever permit himself to forget that, in the spirit in which the least is regarded by his pupils, the greatest will assuredly be done. Like Socrates, the teacher has his opportunity and his task; he has also Socrates' vocation or call, and, if he be faithful, a portion in that triumph, so conspicuously won by the Greek protomartyr, which men call the power of influencing others.

"Finally, and in a word, another aspect of the matter may be noticed. We have seen that, by extending the content of the Socratic method somewhat, it may be said to have pertinent application both to pupil and teacher in the ordinary course of routine. Returning now to its stricter sense, as that which deals with ideas apprehended, but not necessarily learned, it has an important bearing upon the teacher's conception of his art. For it implies that all sham knowledge is to be criticised away, not only in the case of others, but in the far more difficult instance of self; and it points to a certain aim which the teacher ought to attempt to realize. In other words, the Socratic method, so far as it is negative, informs the teacher that he must ever be a learner—that he must constantly be attending to his own attainments, not merely to extend them, but to be assured that they are perfectly solid and capable of standing the most rigorous examination. And, with this as a preliminary, it proceeds to reveal the spirit whereby the teacher ought to be inspired. As men are able to form true conceptions themselves, so they are capable of framing an ideal of the end to be achieved by the possession of such conceptions; but not otherwise. Thus inspired, it needs little telling to perceive what the spirit of their instruction will be. If working in the truly Socratic manner, the teacher ought to have a conscious aim—he ought to desire to be perfectly understood. This clearness should be productive of similar definition in the minds of others. But to this end there cannot but be a common understanding, based upon principles in conformity with which all are able to act. Hence these principles must be

elucidated and explained, that they may effectively appeal to the hearer. Thus, the teacher's ideal on the Socratic method, is to show pupils that *his* ideas can be put to practical uses in knowledge—and by idea is meant, not an abstract theory, but a definite conception. The very practicing of them in this way of exposition enriches them. The teacher's knowledge progresses by the mere fact that it passes from him to another. His aim, therefore, ought to be to put others in a position to progress similarly. And, seeing that he himself is advancing, the demands of this ideal will ever be on the increase. The spirit of the true educationist, accordingly, is one with that of the prophet. As an instructor, Socrates would say, he must take heed that knowledge is transformed from simple information into active power. The moment the teacher proceeds to work this transformation, he assumes the prophet's mantle. By a sudden flash he perceives that the growth of this power can have no end. When, as with Socrates, the method of instruction is vivified by an ideal of this sort, the meanest detail takes on new significance; it becomes ancillary to a consistent purpose. In a word, careful study of the Socratic method in its various aspects, and with due regard to the differences of time and place, may fill us with a fresh conception of the nobility of the occupation in which we are engaged. We shall not, indeed, be oppressed with a sense of our own importance, but rather be impressed by a perception of the possible results of our ordinary avocation. And, working thus, in the shadow of a great ideal, there will be less need for the fear that we are toiling aimlessly, or without consciousness of the effects which we desire to produce. We shall, it may be affirmed, have in a manner been beforehand with an answer to that question which must be asked at some time or other of every teacher, be it put by himself or by his fellows. It is a question, too, which, were teaching all that Socrates thought it ought to be, would never fail of reply. Of what 'spirit must we be, so that our work shall be least likely to stand in need of reformation'—of being done over again by another?"

The Educated Proletariat in Germany.

DR. L. VIERECK, IN "ZEITUNG FÜR DAS HÖHERE UNTERICHTSWESEN DEUTSCHLANDS."

"When the discussion took place in 1888, on the very general request for the extension of the privileges of graduation from

the Real-Gymnasium, the Minister of Education gave as his main reason for opposing the request, the fact that the professions were already overcrowded with graduates of the Gymnasium alone. Dr. Steinbart of Duisburg promptly replied that the monopoly of privileges enjoyed by graduates of the Gymnasium was the very cause of the overcrowding complained of, and that the concession of similar privileges to graduates of the Real-Gymnasium would lessen, not aggravate, the evil of overcrowded professions. Very general interest was taken in the discussion thus raised, and a prize of one thousand marks was offered for the best essay on the 'Causes of the Overcrowding of the Learned Professions, and Its Remedy.' No less than seventy-six treatises were submitted to the judges, and as the result of their deliberations the prize was equally divided between Dr. Pietzker of Nordhausen, and Dr. Treutlein of Carlsruhe. The essays of these gentlemen have been published, and present a most careful and exhaustive examination of the whole question.

"The conclusion is irresistible that the root of the evil is to be found in the organization of our scholastic system, which treats the secondary school merely as a step in preparation for the university. There are other accessory causes, both industrial and social, but this pedagogic cause is the chief one.

"The development of political and commercial conditions has had an unmistakable influence in greatly increasing the number of students preparing for a professional career. Increased political rights have involved new duties, and these in turn necessitate a higher degree of intellectual preparation on the part of the people at large. The force of competition has brought about a more efficient mental training among men of business; for those possessing it are able to succeed when those without it fail. All of these influences have worked together to send more students than ever before to the secondary schools. And here lies the difficulty. The students, as a rule, do not select the kind of secondary school best suited to their needs, but the Gymnasium, because of the marked privileges conferred by law upon its graduates. From it they are led on to the university, and then to a professional career, simply because that is the line of least resistance. As a result, every profession is overcrowded, and thousands of highly-educated young men are unable to earn a decent living.

"Again, the Gymnasium and university training is the sole

avenue of approach to the higher offices of the state, and German parents have a most absurd and exaggerated idea of the importance and dignity of these government posts. This is another illegitimate inducement to prefer the Gymnasium and the university to the training for commerce or industry. In our higher social class there is an undeniable feeling of aversion toward an industry, as a calling for the youth of the family, because it seems to involve manual and physical labor. There is also a groundless overappreciation of the culture value of a classical education. These are potent forces in driving boys to the Gymnasium and increasing the numbers of the dangerous and rapidly-growing educated proletariat."

The Education of the Romans.

M. L. CHAUVIN, IN "L'ÉDUCATION NATIONALE."

"The Romans worshiped the same gods as the Greeks, though under other names; but they never laid as much stress as did the Greeks upon the popular religion. The true Roman religion must be sought at the family fireside. Each family honored their own ancestors, and looked upon them as protecting powers. The paterfamilias, high priest of the family worship, exercised an authority which has never been surpassed among any other people. 'At once priest and judge,' says Dunay, 'the father's authority is absolute. He alone holds converse with the gods, for he alone performs the *sacra privata*. As master he controls not only the labor, but the life, of his slaves. As husband, he condemns his wife to death if she violates her plighted faith. As father, he kills the child that is born misshapen and sells the others until, after the third time, he loses his rights over them. Neither age nor dignity can free them from his control. Whether consuls or senators, they may be torn from the tribune or the Senate house, and sent forth to death.' Religion and such paternal authority as this gave to the family a place in Roman civilization such as it had not been possible, even in Sparta, to procure for the state. As the child never ceased to belong to his parents, so they alone were charged with his education. This is a characteristic never to be lost sight of.

"It is to be remarked also that Roman institutions, including those relating to education, were not created all at once,

after the fashion of the theoretical plans of Lycurgus and Solon. They had, on the contrary, been developed gradually in response to definite needs, and experience had confirmed or changed them. This explains their eminently practical character, and is the reason why they have been perpetuated to our own time in the countries that were subject to Roman influence.

"In the third place, the Romans, who had built up their nation along rude and rough lines, pursued the useful as an end in itself, rather than the beautiful and the good which had been the Greek ideal. This is true in a marked degree of their educational theory and practice.

"The child who is permitted to live is brought up at home after a fashion at once very simple and very efficacious. Boys and girls are both taught to read, to write, and to count. Then the father trains his son, not in the complicated physical exercises of the Greeks, but in the hard labor of the military drill. He teaches him the fundamental principles of law, a knowledge always held in high esteem in Rome. He takes him to the forum, to the *comitia*, that he may learn his duties as a citizen. The mother inculcates her daughters with the womanly virtues and teaches them the occupations proper to their sex, as well as the art of managing the house. She also instills generous and patriotic sentiments into the hearts of her sons.

"In the earlier periods of Roman history each family was a school of morality and of civic virtue. But after the republic had accomplished its gigantic task of universal domination, and the Romans were enriched by the spoils of conquered peoples, the period of decadence began. A looseness of morals arose, and education felt the influence of it. Parents gave over the care of their children to freedmen and slaves, and the children soon became vicious and without respect for their parents and elders. The influence of Greek culture accelerated the decadence. The rhetoricians and sophists who flourished in Greece at the time of its conquest had a most baneful influence upon the studies and character of the Roman conquerors.

"The first Roman schools date from the third century before Christ. They multiplied rapidly in the succeeding centuries. They were private establishments. Some of the most celebrated of them were endowed under the emperors, and toward

the close of the imperial period state universities were organized at Rome and Constantinople. The schools were divided into several classes, corresponding very well with the usual divisions of public education. The schools of the first, or lowest, class were really popular schools. In them children of both sexes were taught to read, to write, and to count. They also received some idea of geography and of geometry, being aided by maps and geometrical solids. The children of well-to-do parents resorted to schools of the second class, to read and expound the Greek and Latin classics. In addition to this, the rhetoricians gave instruction in eloquence, so highly prized at Rome. Oratory was taught with such minute care that it was carried to a ridiculous excess. The solid and enduring qualities of eloquence were held in lower esteem than the form of statement and its artificial adornments. It was with this study that the youth of the aristocratic families concluded their education. Some few pursued, in addition, a little poetry and music, astronomy, mathematics, and natural science."